

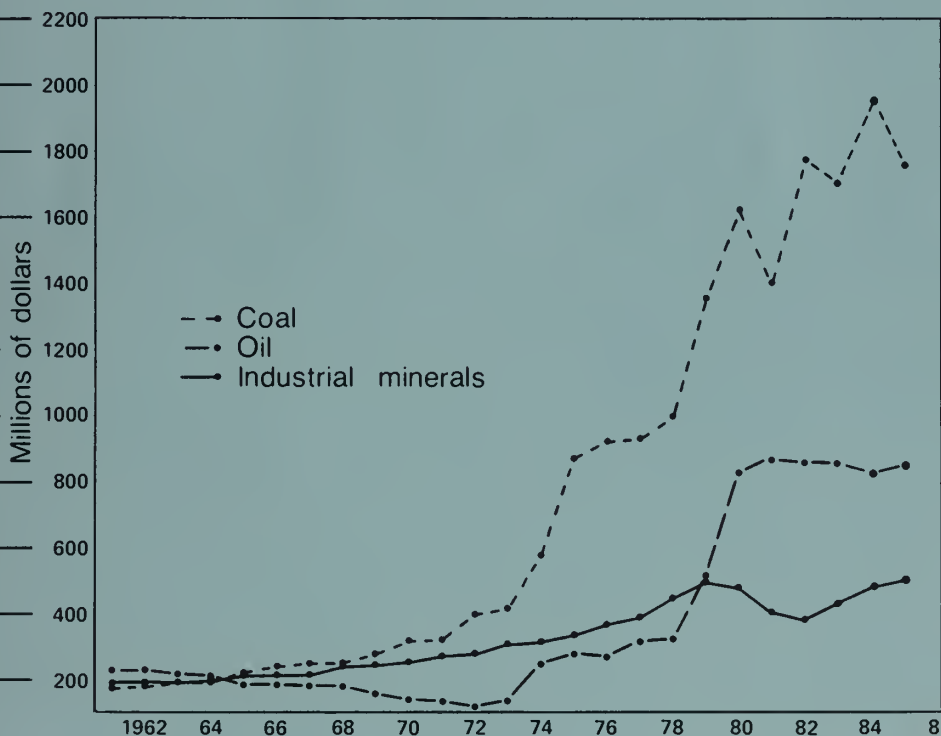
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ILLINOIS MINERAL INDUSTRY IN 1984

and review of preliminary mineral production data for 1985

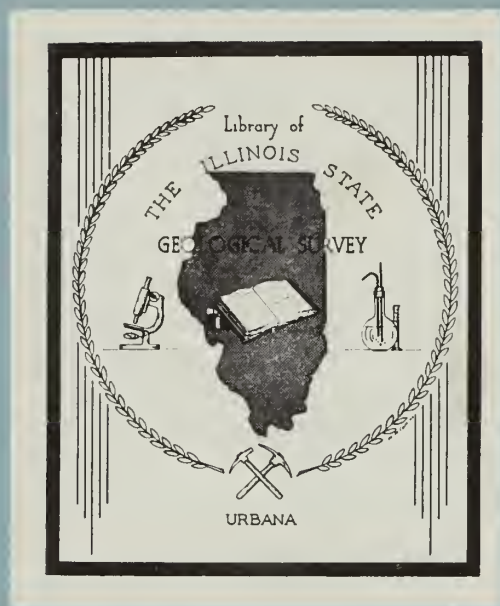
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Illinois mineral industry in 1984 and review of preliminary mineral production data for 1985 / Irma E. Samson and Subhash B. Bhagwat. — Champaign, IL : Illinois State Geological Survey, 1986.

44 p. : tables ; 28 cm. — (Illinois mineral notes ; 95)

1. Mineral industries—Illinois. 2. Commodities—Illinois. I. Title. II. Bhagwat, Subhash B. III. Series.

Printed by authority of the State of Illinois/1986/800

ILLINOIS STATE GEOLOGICAL SURVEY



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ILLINOIS MINERAL INDUSTRY IN 1984

and review of preliminary mineral production data for 1985

Irma E. Samson and Subhash B. Bhagwat

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ABSTRACT

The annual output and value of Illinois minerals extracted, processed, and manufactured into products in 1984 are summarized in this report. Materials used in manufacturing were not necessarily extracted within the state.

Production values (\$ million)

Minerals	1982	1983	1984
Extracted	2,935.6	2,865.5	3,138.0
Processed	508.5	577.9	577.6
Manufactured	<u>167.6</u>	<u>173.5</u>	<u>187.9</u>
TOTAL	3,611.7	3,616.9	3,903.6

Coal continued to be the leading commodity in terms of value; oil ranked second; stone and sand and gravel ranked third and fourth; fluorspar was fifth.

Nationally, Illinois ranked eighteenth in value of nonfuel mineral production. It remained the principal U.S. producer of fluorspar, tripoli, and industrial sand and led in the manufacture of iron-oxide pigments. In stone and peat production, the state ranked fourth.

Preliminary data for 1985 indicate that the value of minerals mined was \$2,947.8 million, a decrease of 6.1 percent from the \$3,138.0 million in 1984.

Detailed production summaries and analyses--including maps, tables, and graphs--for all mineral commodities are based on data available for 1984.

OVERVIEW

The Illinois mineral industry includes three types of operations:

- extracting minerals from the ground
- processing crude mineral materials (mined primarily outside Illinois) into raw industrial materials,
- manufacturing mineral products such as coke, lime, and cement from mineral materials extracted and processed primarily in Illinois (fig. 1).

The total value of products from the three types of operations was \$3,903.6 million in 1984, a 7.9 percent increase over 1983 (table 1).^{*} The true value is actually higher. Data are unavailable for some commodities, thus their values cannot be calculated. Table 2 presents production data for each commodity; the quantity and value of each are also shown as percentages of the total national output in 1983 and 1984.

^{*} All tables are presented at the end of the report--pages 26-44.

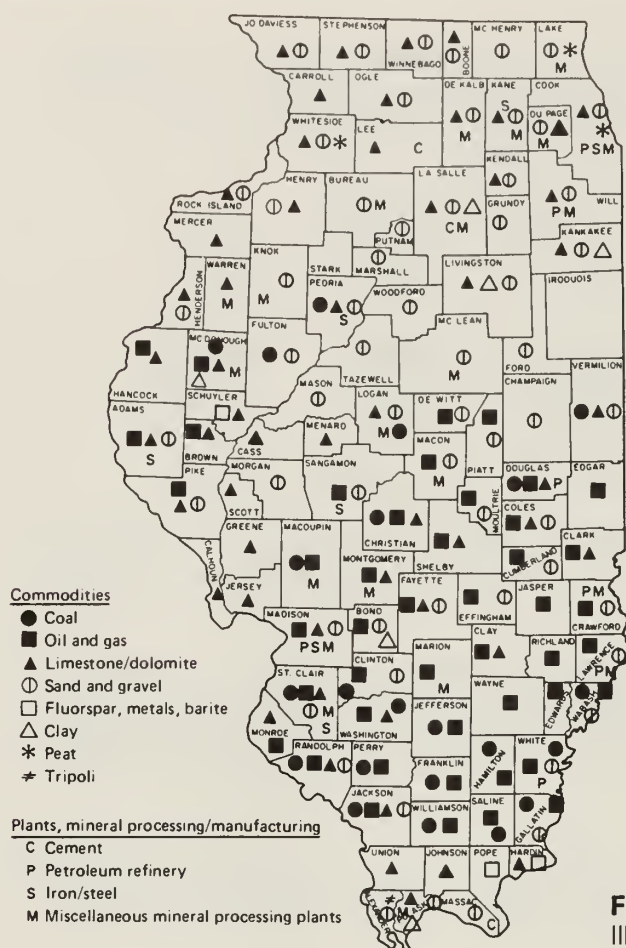


Figure 1
Illinois mineral production and mineral processing plants.

Minerals Extracted

In 1984, the value of commodities mined in Illinois increased by 9.5 percent to \$3,138.0 million (table 1). Mineral fuels such as coal, crude oil, and natural gas accounted for 88.8 percent of the 1984 total; industrial and construction materials such as clays, fluorspar, sand and gravel, stone, and tripoli accounted for 10.1 percent; and the metals such as lead, zinc, and silver, as well as other minerals such as peat, barite, and gemstones, accounted for the remaining 1.1 percent.

In 1984, 99 of the 102 counties in Illinois reported extraction of minerals (table 3). Perry County maintained its lead in the production of coal and crude oil, which amounted to 11.5 percent of the state's total. Franklin County, which also produces coal and crude oil, ranked second with 6.8 percent of the state's total.

Minerals Processed

In 1984, pig iron, natural gas liquids, expanded perlite, sulfur, ground barite, calcined gypsum, exfoliated vermiculite, iron-oxide pigments, crude iodine, bismuth, columbium, tantalum, and primary and secondary slab zinc were processed at a total

value of \$577.6 million, a very slight decrease over the \$577.9 million in 1983 (table 1). Pig iron produced in Cook and Madison Counties accounted for about 90 percent of this total.

Illinois ranked first nationally in manufacture of iron-oxide pigments, third in sales of expanded perlite, sixth of 12 states in shipments of pig iron, and seventh of 29 states in production of exfoliated vermiculite.

Perlite production decreased 0.7 percent while its value increased 3.7 percent; gypsum increased 117.6 percent in production and 136.9 percent in value; vermiculite increased 69.3 percent in production and 57.3 percent in value; iron oxide pigments decreased 9.6 percent in production and 25.2 percent in value; pig iron increased 10.5 percent in production and 1.7 percent in value; sulfur decreased 19.6 percent in production and 23 percent in value.

Products Manufactured from Minerals

The mineral-based materials manufactured in Illinois (primarily from minerals mined within the state) were valued at \$187.9 million in 1984--an 8.3 percent increase over 1983. These products include cement, coke, clay products, lime, and glass. Production and value of all minerals manufactured increased, with the exception of clay products, which decreased about 1 percent. Portland cement production increased 7.5 percent, masonry cement 41.7 percent, and lime 18.1 percent. No figures are available for glass or coke values.

Employment and Wages

According to the Illinois Department of Labor, employment in the state's mineral industries grew to 162,700 workers in 1984 from 158,900 workers in 1983--a 2.4 percent increase. Mining, quarrying, and oil and gas extraction accounted for 24,900 jobs in 1984, compared to 24,100 jobs in 1983--a 3.3 percent increase. Mineral processing accounted for 93,200 jobs--a 3.1 percent increase over 1983. Manufactured mineral products provided 44,600 jobs--a 0.5 percent increase (table 4).

Transportation

Mineral shipments are a large part of the transportation industry in Illinois. About 71.5 million tons (53.4 percent) of sand and gravel, stone, and coal were shipped by truck. Crushed stone accounted for about 53 percent of this tonnage, sand and gravel for 34 percent, and coal for 13 percent. About 31 million tons were shipped by rail; coal accounted for about 97 percent of the tonnage. Barge shipments totaled more than 13 million tons: about 75 percent of this tonnage was coal. Other materials, such as pig iron, fluorspar, coke, and clay products, were shipped by railroad, truck, and barge. Crude oil and natural gas were mainly transported by pipeline, and small amounts of coal were moved to mine-mouth electric generating plants by conveyor belt.

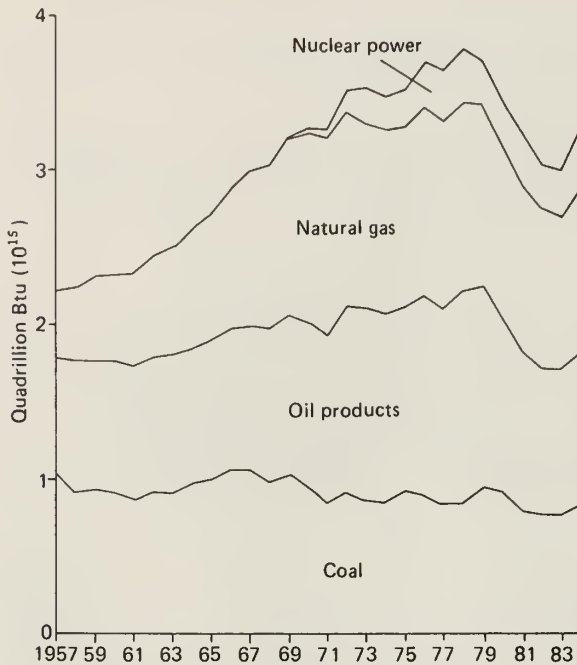


Figure 2

Energy used in Illinois from 1957–84. Quantities of hydropower and early nuclear power (1960–69) were too small to show.

Mineral and Energy Consumption

As a leading manufacturing state, Illinois consumes a large variety of minerals each year. In 1984, the state's consumption of mineral commodities was about 5.0 percent of the nation's total, approximately proportionate to Illinois' share of the total U.S. population (table 5).

The state's energy consumption in 1984 was estimated as 3.3 quadrillion Btu of energy or 4.4 percent of the total U.S. energy consumption (table 6). Fossil fuels provided about 88 percent of Illinois' energy requirements.

The trends in total energy used in Illinois are shown in figure 2. For the first time in 5 years, Illinois' energy usage advanced. From 1979 to 1983, the use of coal declined more than 17 percent, then in 1984, coal use increased about 7 percent. Coal accounted for 26 percent of Illinois energy consumption. Oil products accounted for 30 percent; natural gas for 33 percent; and nuclear power for 11 percent.

MINERALS EXTRACTED

FUELS

Coal

● **Production** In 1984, Illinois maintained fifth place (behind Kentucky, West Virginia, Wyoming and Pennsylvania) among the nation's coal-producing states (table 7). In Illinois, coal production gained about 12 percent over 1983. Twenty-two counties reported coal production in 1984 (fig. 3). The five leading counties--Perry, Franklin, Saline, Randolph and Williamson--

contributed about 45 percent of total production in 1984. Perry County, the state's leading coal producer, contributed 23 percent to the state's total coal production. The leading underground producer was Franklin County (19.5 percent). Jefferson and Saline Counties each contributed 9 percent to underground coal production.

The number of coal mines operating in Illinois has declined steadily from more than 400 mines in the early 1900s to about 150 in the 1950s. In 1984, only 52 mines remain in operation: 31 are underground mines accounting for 61 percent (39.9 million tons) of the state's total production; 21 are surface mines accounting for about 39 percent (25.3 million tons) (fig. 4).

Since 1833 about 5.1 billion tons of coal have been produced from Illinois coal mines (table 8). Surface mines, which began operating in Illinois in 1911, have supplied 1.2 billion tons or 23 percent of this total.

The average output per underground mine reached a peak in 1975. It has not changed significantly since 1977, except for the strike-affected years 1978 and 1981. In 1984, output increased

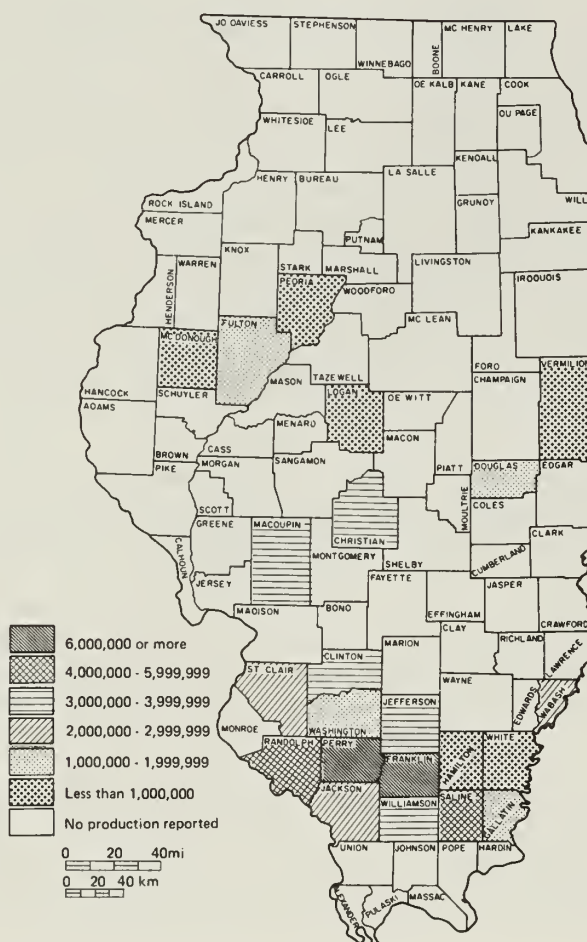


Figure 3
Illinois coal production, 1984.

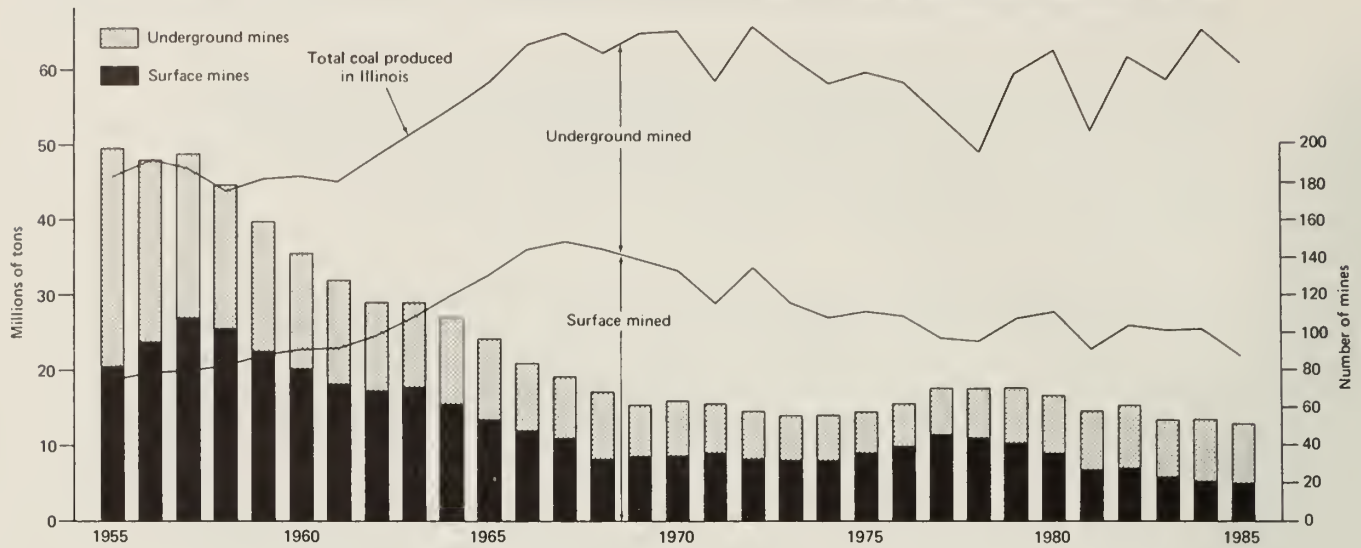


Figure 4 Trends in coal production, 1955-85.

about 20 percent (1.3 million tons). The average surface-mine output, which has been rising since 1977, increased by 11 percent in 1984 (1.2 million tons) (table 9).

In 1984, 24 coal mining companies operated in Illinois (table 10). The top five companies--Peabody, AMAX, Consolidated, Old Ben and Freeman United--represented more than 62 percent of the state's production in 1984. For comparison the top five U.S. companies produced 21 percent of the national total.

• Employment and wages Employment in Illinois coal mines increased slightly to 14,803 in 1984 from 14,759 in 1983 (table 9). Underground mine employment increased 3.3 percent in 1984, while surface-mine employment decreased 7 percent. The hourly wages for bituminous coal miners rose to \$15.94 in 1984 from \$15.23 in 1983 (table 4); and the average number of hours worked weekly went up to 43.4 in 1984 from 43.0 in 1983.

• Mine productivity The measure is tons of coal per person-day (tons/person/day), or the average amount of coal mined by one worker during an 8-hour shift. Increasing production despite decreasing employment reflects increasing labor productivity. In 1984, the labor productivity of underground operations increased 6 percent to 15.3 tons from the previous year's 14.4 tons. The peak level was 22.9 tons per person day in 1969. For surface mines, labor productivity grew less than 1 percent from 23.5 to 23.7 tons per person-day. The peak year was in 1967 with 41.6 tons per person-day (fig.5).

• Prices In 1984, the average price of Illinois coal (f.o.b. mine) was \$29.89 per ton, 1.8 percent higher than the 1983 level of \$29.37 (table 7). The average price (f.o.b. mine) of coal mined underground in Illinois was \$31.39 per ton, and that of surface-mined coal was \$27.60 per ton.

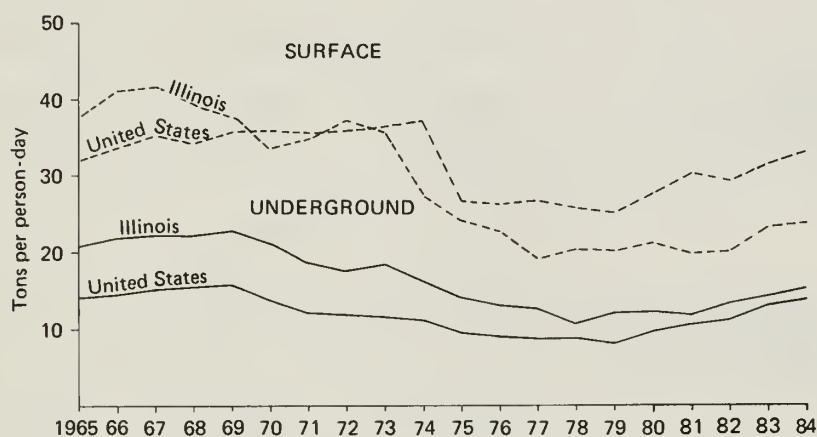


Figure 5 Trends in coal mine productivity, 1965–84.

● **Shipments** Illinois coal is used in various parts of the United States for generating electricity, manufacturing coke, and other industrial activities. In 1984 about 88 percent of Illinois coal was sold to electric utility plants, 4 percent to coke plants manufacturing metallurgical coke, and 7 percent to industrial plants (table 11).

In 1984, about 33 percent of the Illinois coal sold to electric utilities was consumed within the state. Shipments to electric utilities increased from 49.9 million tons in 1983 to 56.2 million tons in 1984. Missouri, Indiana, Georgia, Wisconsin, Iowa and Florida took 90 percent of all Illinois' out-of-state shipments in 1984, compared with about 88 percent in 1983. The market for Illinois utility coal expanded in Missouri, Indiana, Florida, and Georgia--due partly to the rising demand for electricity in Florida and Georgia, and partly to the price advantage that promoted a switch to Illinois coal from oil or other higher priced coals. By contrast, shipments to the northern states of Wisconsin, Minnesota and Michigan were down. Illinois is losing its utility market share to the western states supplying low-sulfur coal that (1) meets federal standards for emission of sulfur oxides, and (2) is often cheaper than Illinois coal.

About 89 percent of coking coal from Illinois was shipped to coking plants in northwestern Indiana; only 11 percent was consumed within the state. Of the Illinois coal used for other industrial activities, about 40 percent was consumed within the state; about 48 percent was shipped to Missouri, Wisconsin, and Iowa; and 10 percent went to Indiana, Minnesota, and Michigan.

● **Transportation** According to the Illinois Department of Mines and Minerals, coal was shipped from mines to the consumer by rail, barge, or truck.

	Tonnage		
	1982	1983	1984
Rail	43,685,833	39,838,997	51,145,961
Barge or rail/barge combination	5,677,129	9,004,751	4,579,844
Local trade and via truck	10,561,067	8,490,655	9,189,465

	Tonnage		
	1982	1983	1984
Missouri-Pacific Lines	18,990,275	18,708,920	20,052,431
Illinois Central Gulf Railroad	13,716,165	15,019,344	17,741,965
Southern	3,022,425	2,807,755	3,880,144
Conrail	2,522,961	2,255,861	2,502,344
Chicago Northwestern Transportation	1,700,623	2,227,593	2,486,189
Burlington Northern	3,584,188	3,019,057	2,226,578
Others	3,975,775	3,183,345	4,308,622
Total	47,501,402	47,221,875	53,198,273

● **Consumption** For the first time since 1979, consumption of coal increased in Illinois (table 7). In 1984, only about 33 percent of the coal produced in Illinois was also consumed within the state. While more Illinois coal is being shipped to out of state destinations, consumption of coals from Indiana and west Kentucky is growing in Illinois. Consumption of Indiana and west Kentucky coal grew from 3 million tons in both 1982 and 1983 to more than 4 million tons in 1984. Some of this business can be traced to low transportation costs, as most of the Indiana coal goes to electric utilities close to the Illinois-Indiana border in Vermilion, Crawford, and Jasper Counties. West Kentucky coal is barged conveniently and cheaply to Massac County on the Ohio River and other destinations along the Mississippi and Illinois Rivers.

Fifty-six percent of the coal used by Illinois electric utilities was supplied within the state; 29 percent came from western states, 5 percent from western Kentucky, 5 percent from Indiana, 5 percent from southern West Virginia, Virginia and eastern Kentucky.

Illinois coke and gas plants met about 13 percent of their coal needs through purchases from in-state mines, then turned to mines in West Virginia, Virginia, eastern Kentucky, Ohio, and eastern Pennsylvania for another 85 percent. Of the 3.6 million tons of coal required for other uses in Illinois, 52 percent was supplied from in-state sources, 12 percent from West Kentucky, and 22 percent from southern West Virginia, Virginia, eastern Kentucky, Pennsylvania, and Ohio.

Crude Oil

● **Production** Illinois crude oil production declined 1.1 percent in 1984 to 28.9 million barrels--the first decrease since 1979 when production hit a low of 21.8 million barrels (table 13). The 1984 production was valued at \$830.4 million, with an average unit value of \$28.76 per barrel. The secondary production method of waterflooding accounted for 11.9 million barrels or 41.3 percent of the state total; and pressure maintenance operations produced 132,700 barrels or 0.46 percent of the state total.

Illinois ranked fourteenth of 32 oil-producing states. In 1984, 46 counties produced crude oil; 10 counties produced more than 1 million barrels, contributing 70 percent of the state's total oil production.

County	1983 (%)	1984 (%)	County	1983 (%)	1984 (%)
White	11.4	11.5	Crawford	5.9	6.5
Wayne	10.7	10.6	Edwards	4.8	4.9
Lawrence	9.0	9.6	Clay	4.8	4.8
Marion	8.7	7.8	Franklin	4.1	3.9
Fayette	6.8	6.8	Wabash	3.8	3.6

Each oil field producing more than 200,000 barrels is considered a major field; the number decreased from 18 in 1983 to 17 in 1984. All 17 fields contributed about two thirds of Illinois' annual oil production (table 14); but the five largest fields--Southeastern Illinois, Clay City Consolidated, Salem Consolidated, Loudon, and New Harmony Consolidated--accounted for nearly one half of the state's total.

In 1940, crude oil production reached a peak of 147.6 million barrels. From that point, oil production by primary recovery methods declined steadily until 1973, although some years showed small gains (fig. 6). In 1954, the introduction of the hydrofrac (hydraulic rock fracturing) method and the increased use of waterflooding reversed the decline. After 1962, production fell steadily again as reserves were depleted. The extent of this

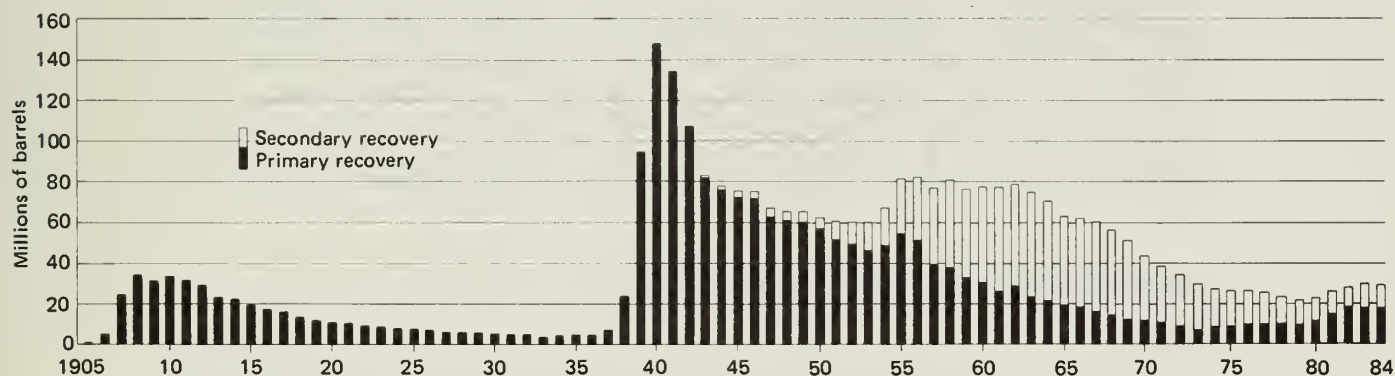


Figure 6 Annual crude oil production, 1905-84.

depletion is indicated by the drop in reserves from 700 million barrels in January 1956 to 153 million barrels in December 1984. Oil reserves reached a low of 113 million barrels in 1980. Since 1974, however, primary recovery production advanced slightly due to a surge in exploration and drilling following three major events: the Middle East crisis of 1973-74; the oil price increases of 1979/80; and the decontrol of crude oil prices from 1979-84. Increasing production since 1980 reflects increasing activity in the Illinois Basin resulting from the incentive of price decontrol.

- **Refineries** According to the U.S. Department of Energy, 7 refineries were operating in Illinois as of January 1, 1985, with a total capacity of 960,500 barrels per day, down 0.5 percent from January 1, 1984.

- **Consumption** Although consumption of major petroleum products in Illinois has been declining for several years, 1984 showed a slight increase. Since 1978 gasoline consumption dropped 15 percent; kerosene, 64 percent; distillate fuel oil, 40 percent; and residual fuel oil, 75 percent (table 15). Consumption of liquefied gases (LPG), asphalt, and road oil began declining after 1979. During 1979-84, LPG declined 23 percent, and asphalt and road oil fell 44 percent.

Natural Gas

- **Production** In 1984, the state's production of natural gas increased for the first time since 1979 (table 16) due to the startup of the new Griggsville field and an increase in the Fishhook field. Pike County became the top producer of gas in 1984. Coles County was second, despite the large increase from the Mattoon fields. Saline County was third with a large increase in the Raleigh field (table 17). These three counties accounted for roughly three fourths of Illinois gas production in 1984.

The average wellhead value of Illinois gas decreased from \$2.84 per thousand cubic feet in 1983 to \$2.78 in 1984.

- **Consumption** Natural gas consumption in Illinois rose 10.1 percent in 1984--the first increase since 1978 (table 18). Consumption increased in every sector except electric utilities, where it fell 50 percent. The average value of natural gas consumed in Illinois decreased from \$5.17 per Mcf in 1983 to \$5.03 per Mcf in 1984, a 2.7 percent decrease. The trends in natural gas consumption since 1970 are presented in figure 7.

INDUSTRIAL AND CONSTRUCTION MATERIALS

Clays

- **Production** Common clay, refractory or fire clay, and absorbent clay (fuller's earth) are mined in Illinois. In 1984, the state's clay production (excluding fuller's earth) fell 65 percent.

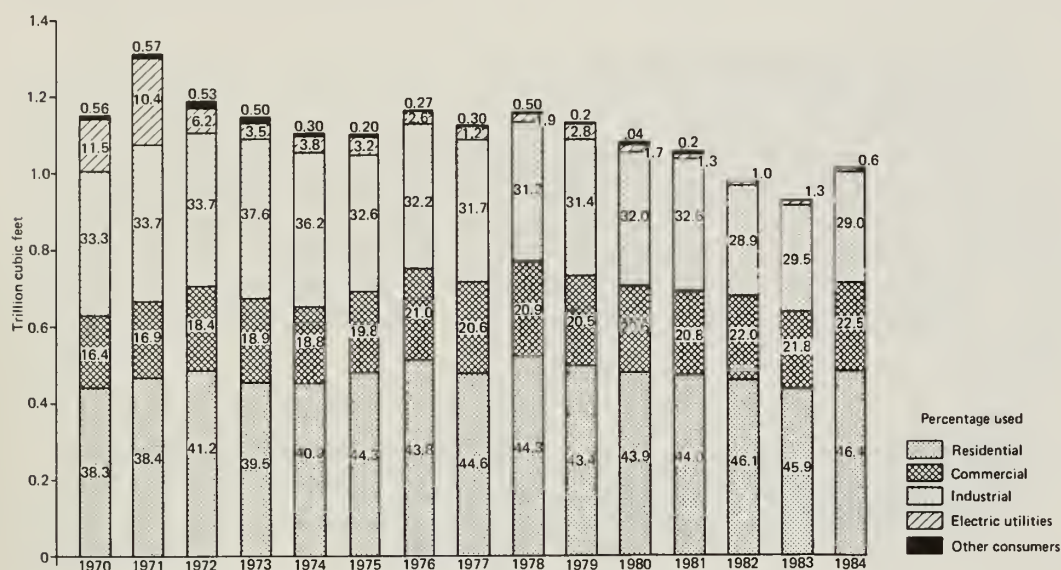


Figure 7 Consumption of natural gas, 1970–84.

After continually declining for 8 years due to strong competition from low cost out-of-state producers, clay production made a comeback in 1983, then dropped sharply in 1984. Total clay production (excluding fuller's earth) was 253,381 tons in 1984 compared to 716,580 tons in 1983 (fig. 8).

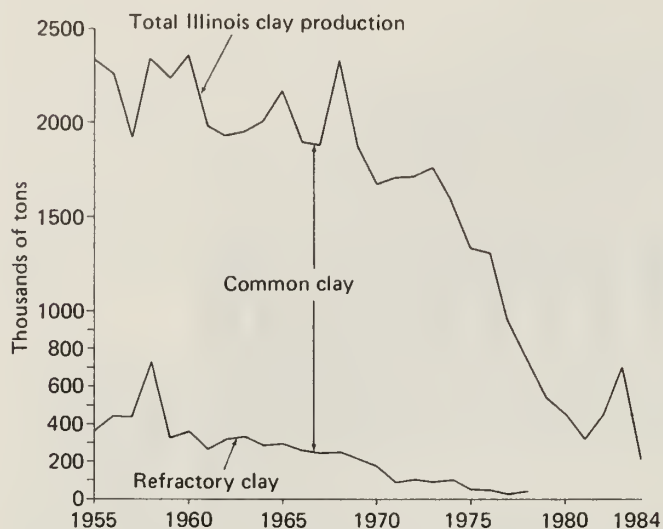
Since 1979, data on refractory clay have been withheld for confidentiality. As the last operating Illinois mine (Grundy County) closed in 1983, no refractory clay was produced in 1984.

The average unit value of common clay decreased from \$4.68 per ton in 1983 to \$3.71 in 1984. The total value was \$939,966 in 1984 compared to \$3,359,537 in 1983. Of the six counties mining clay in Illinois in 1984, Livingston County continued to lead in production of common clay, supplying more than 38 percent of the state's total.

Absorbent clay (fuller's earth) was produced only in Pulaski County by two companies. Production was unchanged from 1984.

• **Consumption and uses** Manufacturers of bricks, sewer pipes, drain tiles, wall tiles, dinnerware, lightweight aggregates, and cement are the principal users of common clays and shales mined in Illinois. Building bricks remained the prime product using 42 percent of Illinois clay in 1984, despite the large decline from 80 percent in 1983. Overall, clay production itself was about 65 percent lower in 1984 than in 1983.

The use of common clay for the production of portland cement, structural concrete, concrete blocks, and highway surfacing expanded to 38 percent of the state's total, compared to 6 percent in 1983. Sewer pipe and drain tile manufacturing rose to 17 percent of the state's total in 1984 from 14 percent in 1983.

**Figure 8**

Trends in clay production,
1955-84.

Absorbent clay from Pulaski County is mainly used in the production of animal litter and oil and grease absorbents.

Fluorspar

• **Production and shipments** Shipments of finished fluorspar from domestic mining operations sank to their lowest level in 50 years in 1983, then recovered somewhat to an estimated 72,000 tons in 1984.

Illinois continued to be the nation's leading producer of fluorspar, contributing more than 90 percent of the U.S. total. In 1984, the state's production increased 12 percent over that of 1983. Imports of low-priced Mexican and South African fluorspar have affected domestic production, however; foreign sources filled more than 90 percent of U.S. fluorspar requirements. In 1984, only 9.7 percent of apparent U.S. consumption was domestically produced. (Individual company data are confidential and cannot be released.)

Ozark-Mahoning Company, the nation's leading fluorspar producer, operated mines in Pope and Hardin Counties; and the Hastie Trucking and Mining Company operated near Cave-In-Rock in Hardin County. The Inverness Mining Company, which was located near Cave-In-Rock, closed its operation permanently.

• **Consumption** Reported consumption of fluorspar in the United States increased 33 percent from 564,187 tons in 1983 to 752,581 tons in 1984 because the production of hydrofluoric acid and the refining of iron and steel increased. The apparent U.S. consumption (production + imports - exports ± change in stocks) grew from 613,705 tons in 1983 to 743,431 tons in 1984. Consumption of fluorspar in Illinois declined from 12,561 tons in 1983 to 10,747 tons in 1984. Illinois accounted for about 2.2 percent of the nation's fluorspar consumption in 1983 and only 1.4 percent in 1984.

Fluorspar is used as a flux in raw steel production, which increased about 6 percent in 1983 and about 20 percent in 1984; however, steel production is still below that of the early 1970s. Fluorspar is also used to produce hydrofluoric acid, fluorocarbon gases and plastics, sodium and aluminum fluorides, refining aluminum, and other miscellaneous chemicals. Declines in consumption are linked to the reduced demand for fluorine materials by the steel and aluminum industries, to increased recycling in the aluminum industry, and to general economic conditions.

Sand and gravel

In 1981, the U.S. Bureau of Mines implemented new procedures for its surveys of sand and gravel producers. Surveys will be conducted only in even-numbered years. For odd-numbered years, only estimates will be published.

• **Production** Deposits of sand and gravel are widely distributed throughout Illinois (table 19). Glacial deposits, chiefly valley trains and outwash plains, are the principal sources of construction sand and gravel. In 1984, Illinois ranked eighth nationally in sand and gravel output. Production in 1984 was 26 million tons compared to an estimated 21 million in 1983. The combined value of these mineral materials in 1984 was \$72.5 million. The unit value for building sand and gravel was \$2.80; paving, \$3.12; fill, \$2.07; and all other materials, \$2.75.

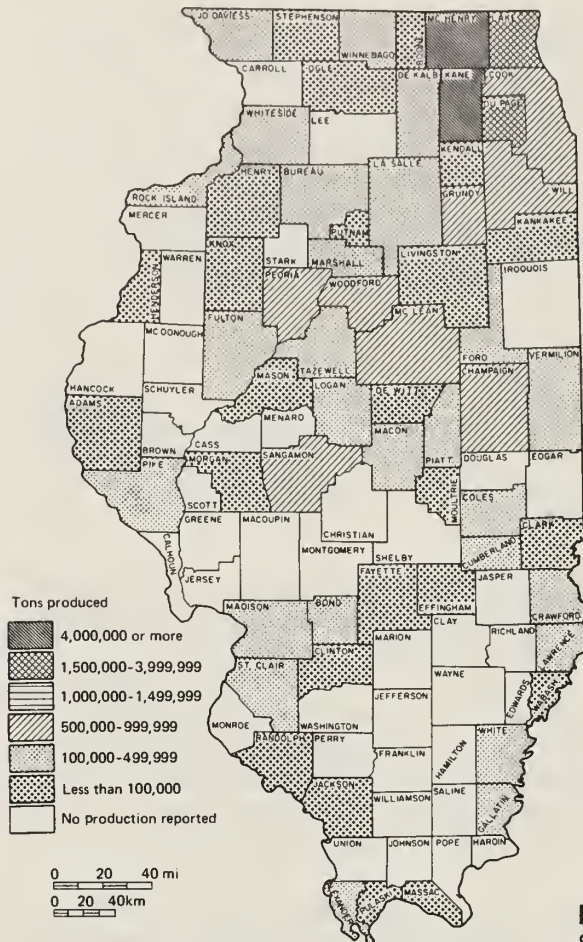
Sixty-one counties produced sand and gravel in 1984 (fig. 9); 131 companies worked 171 deposits (as compared with 143 companies working 197 deposits in 1983). Total sand and gravel production increased 1.7 percent from the 1983 level.

Illinois ranked first in the nation in 1984 with the production of 4.1 million tons of industrial sand worth \$52.2 million. Six companies operating in La Salle, Mason, and Ogle Counties reported this output. The unit value increased from \$10.94 in 1983 to \$12.73 in 1984.

• **Transportation** Due to its low unit price, most construction sand and gravel is shipped no farther than about 50 miles from the pit. In 1984, 95 percent was shipped by truck and the remainder was either barged or used at the pit.

• **Consumption and uses** Production reported is actually material "sold or used" as stockpiled production is not reported until it is sold or consumed. Illinois sand and gravel is primarily used as construction aggregate. Total consumption of sand and gravel in 1984 increased more than 20 percent from 1982; total value increased more than 22 percent (table 20).

Industrial silica sand was produced in two forms: ground and unground. Unground sand was used primarily for glass manufacturing. Other uses include molding, sand blasting, grinding and

**Figure 9**

Sand and gravel production by county, 1984.

polishing, railroad traction sand, filtration sand, and propping sand for hydrofracturing of oil wells. Ground sand was used in chemicals, abrasives, enamels, pottery, porcelain, tile, and various fillers. Silica sand consumption increased 2.8 percent between 1982 and 1984.

Stone

The U.S. Bureau of Mines canvasses data on stone production every odd-numbered year. Only estimates for 1984 are included in this report.

● **Production** In 1984, the estimated total value of Illinois stone production grew to \$191.6 million from \$166.9 million in 1983. Crushed stone production was estimated at 48.5 million tons in 1984--an increase of more than 13 percent over 1983. Illinois ranked fourth in the nation, behind Texas, Florida, and Pennsylvania, in total stone production for 1983 and 1984. These four states accounted for more than 27 percent of the nation's total. In 1983, 54 Illinois counties reported stone production.

- **Shipments** About 90 percent of Illinois stone is shipped by truck. Shipments of stone, a bulk commodity, are confined primarily to areas near the quarry. Illinois waterways are put to use by some producers in Will County, and a very small amount is shipped by rail.

- **Consumption and uses** About three fourths of Illinois stone is used as construction aggregate, principally as road-base stone. Chemical purposes account for about 15 percent and agriculture for 10 percent in 1983 (fig. 10). The pattern of usage has not changed much, although the estimated production shows that the trend in total consumption is upward.

The dimension stone mined in Illinois is used as veneer in house construction, rubble, and flagging.

Tripoli (amorphous silica)

- **Production** The term "tripoli" refers to several fine-grained, porous, siliceous materials. Tripoli deposits in Alexander County occur in the almost horizontal strata of the Devonian Clear Creek Formation and the Grassy Knob Formation below it. Commercial-grade deposits of tripoli are up to 40 feet thick. Selective mining bypasses large areas of chert and iron-stained material that defines the upper and lower limit of commercial-grade tripoli. Two of the nation's leading tripoli producers are located in Alexander County in southern Illinois--Illinois Minerals Company and Tammsco Inc.

Illinois continues to be the nation's largest producer of siliceous materials in recent years, accounting for more than half the total U.S. production in 1984. Actual production figures are confidential; however, Illinois crude production increased 4 percent in 1984, while the value decreased about 5 percent.

In early 1984, Tammsco, Inc. was sold to K & W Engineering Company of Nashville, Tennessee. The company's plant was upgraded and production increased. Illinois Minerals Company is now a Division of Georgia Kaolin.

- **Consumption and uses** The amorphous silica processed in Illinois was used for fillers in paint, plastic, and rubber products, and for abrasives in buffing and polishing compounds, soap, and toothpaste. Some iron-stained tripoli is now being used in the manufacture of portland cement. The quantity of processed materials sold in 1984 was 2.9 percent more than in 1983.

METALS

Zinc, Lead, Silver, and Germanium

- **Production** Zinc, lead, silver, and germanium were recovered from fluorspar ore mined in Hardin and Pope Counties by Ozark-Mahoning Company. In 1984, the output and value of zinc

and lead increased substantially from 1983, while the output of silver increased only slightly.

OTHER MINERALS

Peat

Although peat is classified as a fuel by the U.S. Bureau of Mines, all commercial sales of peat in the United States (excluding imports) are for agricultural and horticultural purposes, specifically for soil improvement. Three major kinds of peat--reed-sedge, moss, and peat humus--were produced in Illinois by four companies located in Cook, Lake, and Whiteside Counties. Illinois ranked fourth after Florida, Michigan, and Indiana among the 22 peat-producing states. Sales declined 37 percent, and value declined 45 percent in 1984.

Gemstones

Limited to specimen-grade fluorite collected in the fluorspar mines in Illinois, gemstones contributed little to the total value of mineral production. The estimated value was only about \$15,000 in 1984.

Primary barite

Barite, which occurs as an accessory mineral in fluorspar ore, has been recovered as a byproduct by the fluorspar industry of Hardin County since 1974. Ozark-Mahoning was the only producer. In 1984, barite production increased 52 percent and value rose 50 percent from the 1983 level. Barite is used primarily as a weighting agent in drilling muds. Other uses include manufacture of paints, glass, rubber, and barium chemicals.

MINERALS PROCESSED

Minerals produced mainly in other states and in foreign countries but processed in Illinois include ground barite, columbium and tantalum, calcined gypsum, crude iodine, iron oxide pigments, natural gas liquids, expanded perlite, pig iron, sulfur, exfoliated vermiculite, primary slab zinc, and secondary slab zinc.

Ground barite

Only two Illinois companies process ground barite: Mineral Pigments and Metals Division of Pfizer, Inc. in St. Clair County and Ozark-Mahoning Company in Hardin County. This ground barite is used almost exclusively as a filler or an extender in paints.

Columbium and tantalum

Processing of columbium-tantalum concentrate imported from foreign countries was reported by Fansteel, Inc., in Cook County. Fansteel produced columbium, tantalum metal, and tantalum carbide. They also expanded their wire- and tube-making equipment at the North Chicago plant. Columbium and tantalum are used

primarily in the production of various steel alloys. Production figures are not available.

Calcined gypsum

Calcined gypsum, used primarily for prefabricated housing materials such as wallboard, was processed by the National Gypsum Company in Lake County. The plant closed in 1982, but reopened in 1983, and was in full production in 1984.

Crude iodine

Crude iodine was processed into inorganic compounds for commercial use at three Illinois plants: Abbott Laboratories in Lake County, Economics Laboratory, Inc. in Will County, and West Argo-Chemicals in Lake County. Although crude iodine is used primarily as a catalyst or stabilizer, it is also added to animal feed, inks, colorants, pharmaceuticals, and sanitary and industrial disinfectants.

Iron oxide pigments

In 1984, processing of iron-oxide pigments fell more than 10 percent to 29,475 tons valued at \$24.9 million. Production had been higher in the two previous years: 33,000 tons of pigments valued at \$33.3 million in 1983, and 31,000 tons valued at \$29.3 million in 1982.

The finished pigments were produced from iron ore imported from other states by the Prince Manufacturing Company in Adams County; the George B. Smith Chemical Works in Kane County; Pfizer, Inc., in St. Clair County; and Solomon Grinding Service in Sangamon County.

Natural gas liquids

Natural gas liquids include ethane, propane, isobutane, unsplit butane, and a combination of gasoline and liquefied petroleum gas (LPG). Natural gas liquids were processed in Douglas County by the United States Industrial Chemical Company, a division of National Distillers and Chemical Corporation.

Expanded perlite

Crude perlite mined outside the state was processed by three companies: Silbrico Corporation in Cook County, Strong-Lite Products Corporation of Illinois in De Kalb County, and Johns-Manville Sales Corporation in Will County. In 1984, Illinois ranked third in sales of expanded perlite, following Mississippi and California. Production in 1984 decreased 3.6 percent, while value increased 3.7 percent over 1983.

Expanded perlite is used primarily as roof insulation board and for horticultural purposes. Other uses include aggregate for concrete and plaster, for low-temperature insulation, and for filters.

Pig iron and raw steel

Pig iron production in Illinois advanced for the second year to 3.0 million tons in 1984 after a low of 1.3 million tons in 1982. The total value of the pig iron produced increased from \$512 million in 1983 to \$521 million in 1984. In shipments of pig iron, Illinois ranked sixth of 12 states.

According to the American Iron and Steel Institute in Washington, D.C., Illinois production of raw steel was 6.5 million tons or 7 percent of the U.S. output in 1984, an increase of about 20 percent over the 1983 level of 5.4 million tons. The industry continued its restructuring efforts in order to cut costs and remain competitive.

Slag (iron and steel)

Illinois ranked eighth nationally of 22 states in the production of processed iron and steel slag. Six companies processed slag from iron and steel furnaces; four companies processed steel slag; and three companies produced air-cooled blast furnace slag. Primary use was for construction aggregate. Because of the depressed state of the construction industry, sales declined 18 percent in 1984.

Recovered elemental sulfur

Elemental sulfur was recovered as a byproduct of the oil refinery operations of five companies in Crawford, Lawrence, Madison, and Will Counties. The amount recovered dropped from 224,522 tons in 1983 to 182,125 tons in 1984. Illinois ranked seventh in the nation selling 181,279 tons of sulfur valued at \$15.8 million.

Exfoliated vermiculite

Three companies in De Kalb, Du Page, and Macoupin Counties process exfoliated vermiculite from crude vermiculite mined outside the state. Illinois ranked seventh nationally of 29 states processing vermiculite. The quantity produced grew more than 69 percent in 1984, and the value, more than 57 percent.

Exfoliated vermiculite has several uses:

	1983 <u>(%)</u>	1984 <u>(%)</u>
Loose-fill insulation	40.4	25.4
Block insulation	12.9	9.1
Concrete aggregate	15.1	11.7
Horticulture and agriculture	4.4	9.0
Plaster aggregates, steel mills, and fireproofing	27.2	44.8

Primary slab zinc

Amax Zinc Company, Inc., in St. Clair County processed special high-grade zinc from domestic and foreign ores and concentrates. Six states, including Illinois, accounted for the smelter production of primary slab zinc in 1984.

Secondary slab zinc

During 1984, secondary slab zinc was processed at Illinois Smelting and Refining Company in Cook County. The New Jersey Zinc Company in Bureau County no longer produces secondary slab zinc, but processes zinc dust. Production data for individual states are not available.

MINERAL PRODUCTS MANUFACTURED

Cement, clay products, coke, glass, and lime were manufactured in 1984 from crude mineral materials mined both in and out of state.

Cement

● **Production** Raw materials used to manufacture cement include cement rock (an argillaceous limestone containing lime, silica, alumina, and magnesia), limestone, clay, shale, sand, fly ash, slag, gypsum, and tripoli.

In 1984, four companies produced cement in Illinois: Illinois Cement Company, a subsidiary of Centex Corporation and Lone Star Industries Inc., in La Salle County; Dixon-Marquette Cement Inc., a subsidiary of Prairie Materials Sales Inc., in Lee County; and Missouri Portland Cement Company, a division of H. K. Porter Company Inc., in Massac County. All four companies produced portland cement, and all except Illinois Cement Company produced masonry cement.

Portland cement production fell 7.5 percent in 1984, but total value rose about 10 percent. Prepared masonry production grew about 11 percent, as shipments jumped about 46 percent and value about 41 percent. Differences in shipments were adjusted through stockpile variations. The value per ton of portland cement increased by 2.5 percent (table 21), while the value per ton of masonry cement decreased 3 percent. Illinois ranked tenth nationally in shipments of portland cement and twenty-third in shipments of masonry cement in 1984.

Nearly all the cement sold was shipped by truck in bulk form; a small amount was shipped by rail and barge. Over three fourths of the portland cement sales were to ready-mix companies.

● **Consumption** Illinois consumed about 2.6 million tons of portland cement and 72,000 tons of masonry cement in 1984 (fig. 10). These figures show a 16 percent growth in the use of

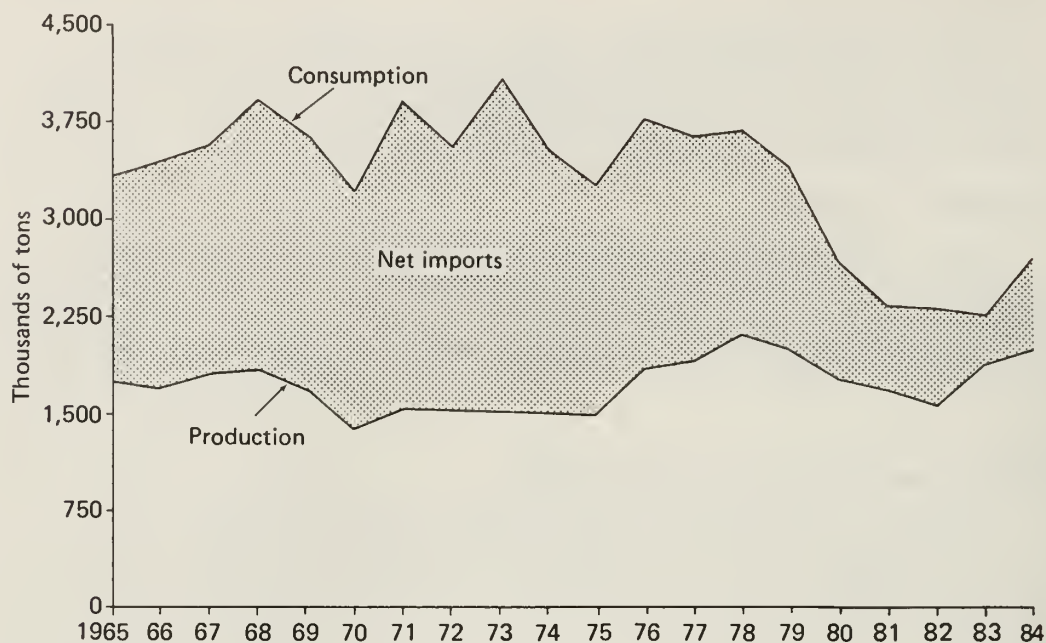


Figure 10

Production and consumption of finished portland cement in Illinois, 1965–84.

portland cement and a 12.5 percent gain for masonry cement indicating an upturn in construction activity.

Clay products

To obtain accurate, current information about the amount and value of clay products manufactured in Illinois, the Illinois State Geological Survey sends questionnaires every year to all producers in the state. Four companies reported mining clay in Illinois in 1984. One plant closed, and a few did not respond.

Clay products were valued at \$60.5 million in 1984. Whiteware and pottery increased from \$27.7 million in 1983 to \$30.9 million in 1984. Structural clay products such as common and face brick, drain tile, and sewer pipes increased from \$8.7 million in 1983 to \$10.5 million in 1984. Refractories and other products declined from \$24.6 million in 1983 to \$19.1 million in 1984.

Coke

● **Production** Coke production in Illinois expanded about 21 percent in 1984 to 1.6 million tons (table 22). This expansion corresponds to the growth in steel production. The difference between coal received and coal carbonized is explained by the change in coal stockpiled at coke plants. The value of coal received decreased from \$56.63 per ton in 1983 to \$56.12 per ton in 1984. The U. S. Department of Energy no longer provides data on byproducts on a state-by-state basis.

• **Consumption and uses** Coke is used for pig iron production, foundry and other industrial purposes, and residential heating. Coke breeze was used for fuel in steam and agglomerating plants. However, data on coke breeze are no longer available.

Glass

Glass and/or fiberglass was manufactured in Du Page, Lake, La Salle, Logan, McLean, Macon, Madison, Marion, Montgomery, St. Clair, and Will Counties. Production data are not available.

Lime

• **Production** In lime production for 1984, Illinois ranked seventh of 38 states. Although the data for lime cannot be disclosed, production increased 18 percent and value grew 19 percent. Three plants in Cook County supplied the state's entire output: two plants owned by Marblehead Company, a division of General Dynamics, produced quicklime and hydrated lime; and Vulcan Materials Company produced quicklime.

Marblehead's South Chicago plant ranked seventh in the United States in output. The company is the nation's largest producer with plants in Illinois, Indiana, Michigan, Pennsylvania and Utah.

• **Consumption and uses** With the consumption of 552,000 tons of quicklime and 112,000 tons of hydrated lime in 1984, Illinois was again one of the nation's leading hydrate consumers (fig. 11). The main chemical and industrial use of lime is in the production of basic oxygen furnace (BOF) steel. Of the lime used to make BOF steel, 30 percent was supplied by Illinois and Indiana in 1984.

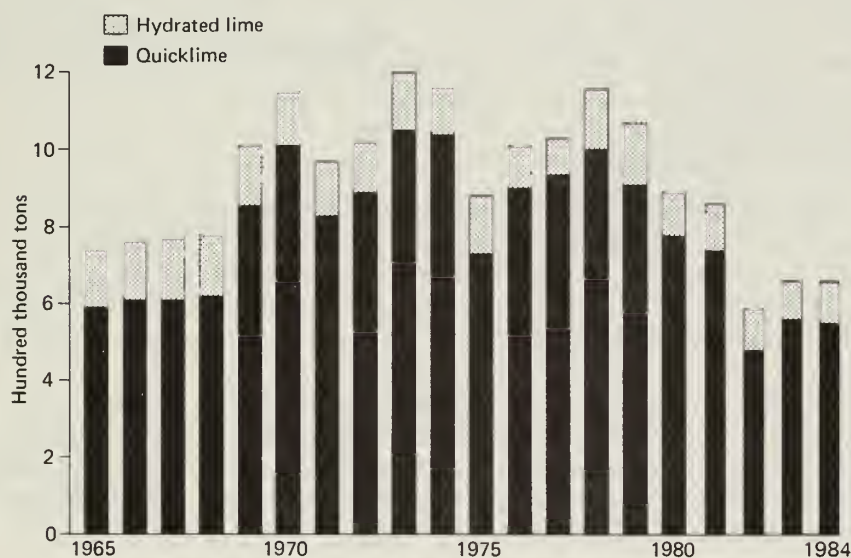


Figure 11

Trends in consumption of quicklime and hydrated lime, 1965–84.

PRELIMINARY PRODUCTION DATA FOR 1985

The leading mineral commodities in Illinois continue to be coal, crude oil, and natural gas; total production value of these fuels has been estimated at \$2.6 billion for 1985. The U.S. Bureau of Mines provided an estimate \$346.8 million for the production value of the state's nonfuel minerals, which include stone, sand and gravel, clays, fluorspar, tripoli, lead, zinc, silver, peat, gemstones, and barite.

MINERALS EXTRACTED

Data for 1985 indicate that the total value of minerals mined was about \$2.9 billion--a 6.1 percent decrease from the 1984 level (table 23). Most commodities decreased; crude oil and peat were the only commodities that showed gains. Nonfuel materials were down 1.5 percent.

FUELS

The mineral fuels were valued at about \$2.6 billion; coal contributed about 68 percent. Crude oil and a small amount by natural gas contributed the remaining 32 percent. The 1985 value of mineral fuel production is expected to be down 6.6 percent from the previous year.

Coal

Illinois coal production fell 7.2 percent to 60.6 million tons in 1985 from 65.3 million tons. The 1985 value of coal per ton is down to an estimated \$29.00 from \$29.89 in 1984. Declines in both price per and tonnage mined resulted in a 10-percent decrease in total production value. The decrease in production was due to the decrease in shipments to all consuming sectors as is evident from the data for the first nine months of the year (table 24). Although shipments to several other states decreased during the first nine months of 1985 (table 25), exports to other countries increased.

Crude oil and natural gas

In 1985 crude oil production is estimated at 30 million barrels--a gain of about 4 percent. The 1985 production is considered to be worth about \$840 million, based on an estimated value of \$28 per barrel. Oil prices per barrel have declined from 1984 to 1985 by about 3 percent.

Some exploration and leasing has occurred in Champaign, Coles, Douglas, and Piatt Counties of east-central Illinois. During the past few years, several operators have been attempting to find additional production within and close to the Cottage Grove fault system of southern Illinois.

From 1984 to 1985, natural gas production and value showed a loss of about 14 percent. The unit value stayed about the same, decreasing only one cent to \$2.77 per Mcf in 1985. Production from most fields generally decreased, but two new fields were reported: Wheatfield in Clinton County and Swearingen in Crawford County.

INDUSTRIAL AND CONSTRUCTION MATERIALS

Preliminary data for 1985 showed a reduction in total value for industrial and construction materials of about 1 percent from 1984. Industrial and construction materials generally lost in value, the exceptions were fluorspar and sand and gravel. Stone and sand and gravel continued to be the strongest contributors to the value of the state's nonfuel mineral production.

METALS AND OTHER MINERALS

Lead, zinc, and barite were recovered as byproducts of Illinois fluorspar production in 1985. No silver production was reported in 1985. In 1985, the total value of metals extracted dropped an estimated 40 percent or more from its 1984 position. From 1984 to 1985, the value of barite fell about 60 percent.

MINERALS PROCESSED

Preliminary data for 1985 are not yet available for most of the minerals processed in Illinois. The American Iron and Steel Institute reported that Illinois raw steel production slipped slightly from 6,504,000 net tons in 1984 to an estimated 6,479,000 net tons in 1985. It is still above the low levels of 1982--5,091,000 net tons. Low operating rates plus strong price competition prevented many steel companies from operating profitably.

MINERAL PRODUCTS MANUFACTURED

Preliminary figures for portland cement show that 2.2 million tons were manufactured in 1985--a 10.1 percent increase over 1984. The 1985 value was \$93.4 million--a 13 percent increase over 1984. Masonry cement fell 41 percent in quantity and 39 percent in value from 1984.

MINERAL NEWS

- ISGS coal geologists calculate that Illinois has 181 billion tons of coal resources in the ground: 161 billion tons are deep-minable and the remaining 20 billion tons are surface-minable. Of the deep-minable resources, about 44 billion tons are as thick and deep as coals currently being mined and could be mined using existing techniques. About 55 billion tons are slightly thinner and/or deeper than currently mined coals, so

their potential for development is considered moderate. Forty-five billion tons of thin and deep coal have a low development potential; and 18 billion tons have a restricted potential because they underlie cities, public lands, interstate highways, and similar areas (ISGS, Circular 527, 1982).

- Allis-Chalmers' KilnGas coal-gasification plant in East Alton is well into the first phase of a project to convince the electric utilities that the process--which produces clean natural gas from high-sulfur Illinois coal--is reliable, economical, and ready for commercial use (Post-Dispatch, January, 1985).

- In April 1985, crews began preparations for mining the Herrin coal (No. 6) seam of Kerr-McGee's Galatia mine in southern Illinois. The Springfield Coal (No. 5) has been completed for mining. The new seam is being developed to meet the contract with Union Electric to supply 2 million ton of coal per year beginning in 1986 (Coal Week, March 1985).

- Tammsco Inc., one of two tripoli producers in the state, was sold to K & W Engineering of Nashville, Tennessee. The firm operates a silica mine and plant in Alexander County (Skillings' Mining Review, April 1985).

- Scientists believe bacteria can remove sulfur from coal. A microbe-based process looks more promising than any engineering or chemical practice yet proposed. The process will take out about 96 percent of the inorganic sulfur (such as pyrite) and produce gypsum, a valuable byproduct that can be used as fertilizer. The organic sulfur in coal is not amenable to bacteria removal (Post-Dispatch, July 1985).

- B. F. Goodrich Company dedicated an innovative industrial boiler that will burn high-sulfur Illinois coal without violating clean-air standards. Using circulating fluidized-bed combustion technology, the Goodrich facility will burn high-sulfur coal to produce steam used for their chemical processing (Journal Star, Nov. 1985).

- Illinois followed by Kentucky and Oklahoma formed an alliance with coal producers, shippers, and financiers to aggressively market coal worldwide: the Mississippi Valley Coal Export Council. The Council will also examine critical export issues (Herald Tribune, February 1986).

- The state's largest fluorspar producer, Ozark-Mahoning Company, reduced its exploration program by half and decreased output at its three mines. Several employees lost their jobs. Lower priced foreign imports have put the company in a squeeze

between rising costs and falling prices. In February the company shut down the barite circuit at its flotation plant in Rosiclare because of poor markets (Skillings Mining Review, March 1986).

- Laclede Steel Company invested \$8 to \$9 million in a 14-month capital improvement program to refurbish its 20-year-old continuous caster. Electronic controls were to replace manual controls to improve the caster's productivity, reliability, and quality of output. About 40 percent of the company's output will be continuously cast, when completed, as compared with 35 percent currently (Skillings Mining Review, March 1986).

- To increase quality and productivity National Steel's Granite City steel works started up a new computer system for its 80-inch hot-strip mill during the year. A 250-ton ladle furnace, support equipment, and a molten steel surface-level control system was also ordered (Skillings Mining Review, March 1986).

TABLE 1. Production and value of mineral materials mined and/or processed and mineral products manufactured, 1982-84^a

Commodity	Unit	1982			1983			1984		
		Quantity	Value (\$1000)	Average unit value (\$)	Quantity	Value (\$1000)	Average unit value (\$)	Quantity	Value (\$1000)	Average unit value (\$)
MINERAL MATERIALS MINED										
FUELS										
Coal	thousand tons	61,428	1,771,588	\$ 28.84	58,374	\$1,714,432	\$ 29.37	65,289	1,951,494	\$ 29.89
Crude oil	thousand bbl	27,709	878,101	31.69	29,200	849,137	29.08	28,873	830,400	28.76
Natural gas	million cu ft	1,162	3,043	2.62	1,030	2,926	2.84	1,530	4,254	2.78
Natural gas liquids	million bbl	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ^b			\$2,652,732			\$2,566,495			2,786,148	
INDUSTRIAL AND CONSTRUCTION MATERIALS										
Clays - common	thousand tons	455 ^c	2,305 ^c	4.89	717	3,360	4.68	253	940	3.71
Refractory	thousand tons	c	c	12.54	-	-	-	-	-	-
Absorbent	thousand tons	W	W	49.73	W	W	51.12	W	W	W
Fluorspar (shipments)	thousand tons	W	W	174.50	W	W	171.53	W	W	W
Sand and gravel	thousand tons	21,557	59,148	2.74	21,100	58,400	2.77	25,969	72,477	2.79
Common	thousand tons	3,989	45,665	11.45	4,060	42,871	10.94	4,100	52,197	12.73
Stone (limestone & dolomite)	thousand tons	42,900	148,300	3.46	42,761	166,860	3.90	48,500 ^d	191,600 ^d	3.95
Crushed and broken	thousand tons	1,712	85	49.86	2,000	98	49.00	--	--	--
Dimension	thousand tons	W	W	W	W	W	W	W	W	W
Tripoli	thousand tons									
TOTAL ^b			\$ 255,516			\$ 271,562			\$ 317,214	
METALS										
Lead	metric tons	W	W	W	W	W	W	W	W	W
Zinc	metric tons	W	W	W	W	W	W	W	W	W
Silver	troy oz	W	W	W	W	W	W	W	W	W
Germanium		NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ^b			W			W			W	
OTHERS										
Peat	thousand tons	46	1,502	32.77	W	W	W	W	W	W
Gem stones		NA	15	-	NA	15	-	NA	15	NA
Barite, primary	thousand tons	W	W	W	W	W	W	W	W	W
TOTAL ^b			\$ 1,517			\$ 15			\$ 15	
Values that cannot be disclosed (W)										
Total value of mineral materials mined ^b										
			27,374			27,471			34,652	
			\$2,935,637			\$2,865,543			\$3,138,029	

TABLE 1. continued

Commodity	Unit	1982			1983			1984		
		Quantity	Value (\$1000)	Average unit value (\$)	Quantity	Value (\$1000)	Average unit value (\$)	Quantity	Value (\$1000)	Average unit value (\$)
MINERAL MATERIALS PROCESSED										
Natural gas liquids	thousand bbl	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perlite, expanded	short tons	W	W	166.31	W	W	W	W	W	W
Barite, ground	short tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gypsum, calcined	short tons	W	W	W	W	W	W	W	W	W
Vermiculite, exfoliated	short tons	W	W	W	W	W	W	W	W	W
Iron oxide pigments	short tons	31,000	29,300	NA	32,619	33,328	NA	29,475	24,920	NA
Bismuth	tons	NA	NA	NA	NA	NA	NA	e	e	e
Primary slab zinc	tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
Secondary slab zinc	tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
Columbium & tantalum	tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodine, crude	lbs	W	NA	NA	NA	NA	W	NA	NA	NA
Pig iron	thousand tons	2,261	449,475	198.79	2,754	512,072	185.91	3,042	520,961	171.23
Sulfur	thousand tons	214	21,006	98.04	W	W	W	181	15,838	87.37
Slag (iron & steel)	thousand tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ^b			\$ 499,781			\$ 545,400			\$ 561,719	
Values that cannot be disclosed (W)			8,766			32,473			15,890	
Total value of mineral materials processed ^b			\$ 508,547			\$ 577,873			577,609	
MINERAL PRODUCTS MANUFACTURED										
Cement (shipments)	thousand tons	1,757	78,444	44.64	1,857	74,975	40.37	1,997	82,622	W
Portland	thousand tons	W	W	W	W	W	W	W	W	W
Masonry	thousand tons	-	57,144	-	-	60,996	-	-	60,454	-
Clay products, estimated	thousand tons	W	W	W	W	W	W	W	W	W
Lime	thousand tons	1,175	NA	NA	1,155	NA	NA	1,643	NA	NA
Coke	thousand tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
Glass	thousand tons	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ^a			\$ 135,588			\$ 135,971			\$ 143,076	
Values that cannot be disclosed (W)			31,963			37,500			44,872	
Total value of mineral products manufactured ^b			\$ 167,551			\$ 173,471			\$ 187,948	
STATE TOTAL ^b			\$3,611,735			\$3,616,887			\$3,903,586	

^a Sources: U.S. Bureau of Mines, Illinois Department of Mines and Minerals, Illinois State Geological Survey.

^b Data may not add up to totals shown because of independent rounding.

^c Refractory clay is included with common clay to avoid disclosing confidential data from individual companies.

^d Estimate by U.S.B.M., no survey for 1984.

^e Only one plant in Illinois - closed in 1984.

NA = not available.

W = withheld to avoid disclosing confidential data from individual companies.

TABLE 2. Illinois mineral production, its value and percentage of United States mineral production, 1983-84^a

Commodity	Unit	1983					
		Illinois		United States		Illinois % of U.S. production	
		Quantity	Value (\$1,000)	Quantity	Value (\$1,000)	Quantity	Value
Fluorspar shipments	thousand tons	W	W	61,000	10,000	--	--
Peat, commercial sales	"	W	W	700 ^c	16,030 ^c	--	--
Coal	"	58,374	1,714,432	776,635	20,176,977	7.52	8.50
Pig iron	"	2,754	512,072	48,770	10,388,010	5.65	4.93
Stone (includes dimension stone)	"	44,597	166,931	862,700	3,337,000	5.17	5.00
Sand and gravel	"	25,160	101,271	681,720	2,270,200	3.69	4.46
Coke	"	1,359	NA	25,808	2,938,757	5.27	--
Clays ^a	"	717	3,360	40,983	931,340	1.75	0.36
Zinc	"	W	W	275	251,204	--	--
Cement shipments (portland)	"	1,857	74,975	67,183	3,315,690	2.76	2.26
Lead	"	W	W	449	214,623	--	--
Crude oil	thousand bbls	29,200	846,800	3,170,999	NA	0.92	--
Natural gas liquids	"	NA	NA	NA	NA	--	--
Natural gas	million cu.ft.	1,030	2,926	16,822,144	43,614,369	0.01	0.01
Lime	thousand tons	W	W	14,902	761,496	--	--
1984							
Fluorspar shipments	thousand tons	W	W	72	W	--	--
Peat, commercial sales	"	W	W	720	19,080	--	--
Coal	"	65,289	1,893,387	890,644	27,280,426	7.33	6.94
Pig iron	"	NA	NA	51,961	NA	--	--
Stone (includes dimension stone)	"	48,500	191,600	957,157	3,519,080	5.07	5.44
Sand and gravel	"	30,069	72,477	773,900	2,244,310	3.89	3.23
Coke	"	1,643	NA	30,561	3,196,069	5.38	--
Clays ^b	"	253	940	42,465	919,111	0.60	0.10
Zinc	"	W	W	253	270,833	--	--
Cement shipments (portland)	"	1,997	82,622	77,881	4,019,948	2.56	2.06
Lead	"	W	W	322	NA	--	--
Crude oil	thousand bbls	28,873	830,400	3,249,696	84,102,132	0.89	--
Natural gas liquids	"	NA	NA	721,000	NA	--	--
Natural gas	million cu ft	1,530	4,254	18,229,638	48,404,611	0.01	0.01
Lime	thousand tons	W	W	15,922	811,226	--	--

^a sources: U.S. Bureau of Mines, Illinois State Geological Survey, Illinois Department of Mines and Minerals and American Petroleum Institute.

^b excluding fuller's earth.

^c estimated.

NA = not available.

W = withheld to avoid disclosing confidential data from individual companies.

TABLE 3. Value of mineral materials mined and/or processed and mineral products manufactured in Illinois, 1984, by county^a

County	Approximate ^b rank bases on total value	Mineral materials mined, in order of value	Value (\$1000)	Mineral materials processed, in order of value	Value (\$1000)	Mineral products manufactured, in order of value	Value (\$1000)	Total value (\$1000)
Adams	57	Stone, crude oil, sand & gravel	W	Iron oxide pigments	W	--	--	W
Alexander	49	Tripoli, sand & gravel	W	--	--	--	--	W
Bond	63	Crude oil, sand & gravel, clay	3,006	--	--	--	--	W
Boone	89	Stone, sand & gravel	W	--	--	--	--	W
Brown	50	Crude oil	7,636	--	--	--	--	7,636
Bureau	82	Sand & gravel	1,087	--	--	Clay products	W	W
Calhoun	93	Stone	W	--	--	--	--	W
Carroll	84	Stone	W	--	--	--	--	W
Cass	89	Stone	W	--	--	--	--	W
Champaign	69	Sand & gravel	1,990	--	--	--	--	1,990
Christian	10	Coal, crude oil, stone	W	--	--	--	--	W
Clark	71	Stone, crude oil ^c	W	--	--	--	--	W
Clay	26	Crude oil, stone	W	--	--	--	--	W
Clinton	12	Coal, crude oil, sand & gravel	W	--	--	--	--	W
Coles	51	Crude oil, stone, natural gas, sand & gravel	W	--	--	--	--	W
Cook	7	Stone, sand & gravel peat	W	Expanded perlite, slag, pig iron ^d secondary slab zinc ^e	W	Lime, clay products, coke ^e	W	111,040
Crawford	22	Crude oil, sand & gravel	W	Sulfur	W	--	--	W
Cumberland	41	Crude oil ^c , sand & gravel	11,832	--	--	--	--	11,832
De Kalb	64	Stone, sand & gravel	W	Exfoliated vermiculite, expanded perlite	W	--	--	2,973
De Witt	68	Crude oil, sand & gravel	W	--	--	--	--	W
Douglas	23	Coal, stone, crude oil	W	Natural gas liquids ^e	W	--	--	W
Du Page	37	Sand & gravel, stone	W	Exfoliated vermiculite	W	Clay products, glass ^e	--	17,027
Edgar	77	Crude oil, natural gas	1,781	--	--	--	--	1,781
Edwards	27	Crude oil	40,298	--	--	--	--	40,298
Effingham	47	Crude oil, sand, natural gas	W	--	--	--	--	W
Fayette	20	Crude oil, stone, sand & gravel, natural gas	W	--	W	--	--	W
Ford	92	Sand & gravel	W	--	--	--	--	W
Franklin	2	Coal, crude oil	264,897	--	--	--	--	264,897
Fulton	28	Coal, sand & gravel	W	--	--	--	--	W
Gallatin	19	Coal, crude oil, sand & gravel, natural gas	W	--	--	--	--	W
Greene	87	Stone	W	--	--	--	--	W
Grundy	76	Sand	W	--	--	--	W	W
Hamilton	24	Coal, crude oil	43,254	--	--	--	--	43,254
Hancock	74	Stone, crude oil	W	--	--	--	--	W
Hardin	32	Fluorspar, stone, zinc, primary barite, lead, silver, gemstones, germanium ^c	W	Ground & crushed barite ^e	--	--	--	W
Henderson	83	Stone, sand & gravel	W	--	--	--	--	W
Henry	78	Stone, sand & gravel	W	--	--	--	--	W
Iroquois	101	--	--	--	--	--	--	--
Jackson	17	Coal, stone, crude oil, sand & gravel	W	--	--	--	--	--
Jasper	34	Crude oil	20,898	--	--	--	--	20,898
Jefferson	4	Coal, crude oil	140,484	--	--	--	--	140,484
Jersey	95	Stone	W	--	--	--	--	W
Jo Daviess	70	Stone, sand & gravel	W	--	--	--	--	W
Johnson	59	Stone	W	--	--	--	--	W
Kane	30	Sand & gravel, stone ^f	16,672	Iron oxide pigments	W	Clay products	W	W
Kankakee	54	Stone, sand & gravel, clay	W	--	--	--	--	W
Kendall	80	Stone, sand & gravel	W	--	--	--	--	W
Knox	39	sand & gravel	--	--	--	Clay products	W	W
Lake	43	Sand & gravel, peat	W	Calcined gypsum, crude iodine ^e , columbium ^e	W	Clay products	W	10,272
La Salle	14	Sand & gravel, stone clay	W	--	--	Portland cement, clay products, glass ^e	W	95,844
Lawrence	16	Crude oil, sand & gravel	W	Sulfur	W	--	--	W
Lee	44	Stone	W	--	--	Portland cement, masonry cement	W	W
Livingston	58	Stone, clay, sand & gravel	W	--	--	--	--	W
Logan	31	Coal, stone, sand & gravel	W	--	--	Glass ^e	--	W
McDonough	35	Coal, stone, crude oil, clay	W	--	--	Clay products	W	W
McHenry	42	Sand & gravel	11,253	--	--	--	--	11,253
McLean	62	Sand & gravel	3,021	--	--	Fiberglass ^e	--	3,021
Macon	55	Crude oil, sand & gravel	W	--	--	Glass ^e	--	W
Macoupin	12	Coal, crude oil	101,748	Exfoliated vermiculite	W	--	--	W

TABLE 3. continued

County	Approximate ^b rank bases on total value	Mineral materials mined, in order of value	Value (\$1000)	Mineral materials processed, in order of value	Value (\$1000)	Mineral products manufactured, in order of value	Value (\$1000)	Total value (\$1000)
Madison	36	Crude oil, stone, sand & gravel, natural gas	W	Sulfur, slag ^e , pig iron ^d	W	Clay products, coke ^e , glass ^e	W	17,699
Marion	18	Crude oil	64,402	Secondary slab zinc ^e	--	Glass ^e	--	64,402
Marshall	79	Sand & gravel	W	--	--	--	--	W
Mason	98	Sand & gravel	24	--	--	--	--	24
Massac	25	Sand & gravel	21	--	--	Portland cement	W	W
Menard	75	Stone	W	--	--	--	--	W
Mercer	93	Stone	W	--	--	--	--	W
Monroe	65	Stone, crude oil	W	--	--	--	--	W
Montgomery	61	Stone, crude oil natural gas	W	--	--	Glass ^e	--	W
Morgan	100	Sand & gravel	J	--	--	--	--	J
Moultrie	96	Crude oil, sand & gravel	W	--	--	--	--	W
Ogle	45	Sand & gravel, stone	W	--	--	--	--	W
Peoria	40	Coal, sand & gravel, stone	W	Slag ^e	--	--	--	W
Perry	1	Coal, crude oil	448,562	--	--	--	--	448,562
Piatt	91	Sand & gravel, crude oil	W	--	--	--	--	W
Pike	56	Stone, natural gas, sand & gravel	W	--	--	--	--	W
Pope	99	Fluorspar ^g , lead ^g zinc ^g , silver ^g	--	--	--	--	--	g
Pulaski	38	Clay, stone, sand & gravel	W	--	--	Clay products	W	16,209
Putnam	97	Sand & gravel	118	--	--	--	--	118
Randolph	5	Coal, stone, crude oil, sand & gravel, natural gas	W	--	--	--	--	W
Richland	33	Crude oil	25,136	--	--	--	--	25,136
Rock Island	52	Stone, sand & gravel	W	--	--	--	--	W
St. Clair	13	Coal, stone, sand & gravel, crude oil, natural gas	W	Iron oxide pigments, ground harite ^e , Primary slab zinc ^e	W	Glass ^e	--	100,639
Saline	3	Coal, crude oil, natural gas	167,057	--	--	--	--	167,057
Sangamon	48	Crude oil, sand & gravel	61,045	Iron oxide pigments	W	--	--	W
Schuyler	85	Crude oil, stone	W	--	--	--	--	W
Scott	86	Stone	W	--	--	--	--	W
Shelby	81	Crude oil, stone	W	--	--	--	--	W
Stark	102	--	--	--	--	--	--	--
Stephenson	73	Stone, sand & gravel	W	--	--	--	--	W
Tazewell	88	Sand & gravel	764	--	--	--	--	764
Union	53	Stone	W	--	--	--	--	W
Vermilion	46	Coal, stone, sand & gravel	W	--	--	--	--	W
Wabash	9	Coal, crude oil, sand & gravel	W	--	--	--	--	W
Warren	66	Stone	W	--	--	Clay products	W	W
Washington	27	Coal, crude oil, stone	W	--	--	--	--	W
Wayne	15	Crude oil, natural gas	88,651	--	--	--	--	88,651
White	11	Crude oil, coal, sand & gravel	W	--	--	--	--	W
Whiteside	67	Peat, stone, sand & gravel	W	--	--	--	--	W
Will	29	Stone, sand & gravel	W	Sulfur, expanded perlite	W	Glass ^e	--	32,171
Williamson	6	Coal, crude oil, natural gas	120,412	--	--	--	--	120,412
Winnebago	72	Stone, sand & gravel	W	--	--	--	--	W
Woodford	60	Sand & gravel	3,083	--	--	--	--	3,083
Undistributed		Crude oil, sand & gravel	W	Pig iron	520,961	--	--	W
Values that cannot be disclosed (W)			1,474,447		56,648		187,948	2,029,350
TOTAL ^h			3,138,029 ⁱ		577,609		187,948	3,903,586 ^j

^asources: U.S. Bureau of Mines, Illinois Department of Mines and Minerals, and Illinois State Geological Survey.^bsince some values are not available by county, county ranking cannot be exact.^cClark County crude oil value included with Cumberland County.^dpig iron not available by county.^evalue unknown. Not included in total.^fincluding dimension stone.^gPope County fluorspar and metal values included in Hardin County.^hdata may not add up to totals shown because figures have been rounded.ⁱstone figures are based on the same counties producing for 1983.^jless than \$500.

W = Withheld to avoid disclosing confidential data from individual companies.

TABLE 4. Number of employees and average weekly earnings, hours worked, and hourly wages in Illinois mineral industry, 1983-84^a

Class of employment	1983				1984			
	No. of employees (x 1000)	Average weekly earnings (\$)	Average no. of hrs worked/week	Average hourly earnings (\$)	No. of employees (x 1000)	Average weekly earnings (\$)	Average no. of hrs worked/week	Average hourly earnings (\$)
Mining	24.1	576.73	42.8	13.48	24.9	610.65	43.8	13.93
Bituminous coal	13.6	654.17	43.0	15.23	14.2	692.77	43.4	15.94
Oil and gas extraction	5.9	485.78	40.9	11.88	5.8	491.67	41.6	11.82
Other	4.5	474.70	45.6	10.42	4.8	524.18	48.4	10.82
Mineral processing	90.4	496.70	40.3	12.33	93.2	524.47	42.0	12.47
Blast furnaces and basic steel	25.3	504.84	38.9	12.99	24.9	540.15	41.7	12.95
Primary metal industries	57.9	476.69	40.4	11.81	61.1	501.61	41.7	12.03
Petroleum refining	7.2	629.08	43.9	14.53	7.2	662.38	45.8	14.47
Mineral product manufacturing	44.4	459.12	41.9	10.95	44.6	466.62	41.9	11.08
Glass and glass products	7.8	472.07	42.8	11.04	7.3	474.50	41.8	11.35
Cement and clay products	3.5	368.96	40.5	9.12	3.7	373.00	41.0	9.10
Stone and other mineral products	23.9	418.07	41.1	10.17	24.3	423.22	40.8	10.37
Petroleum and coal products	9.2	589.11	43.9	13.62	9.3	611.11	45.2	13.53

^asource: Illinois Department of Labor, Bureau of Employment Security.TABLE 5. Selected mineral materials used in Illinois 1983-84^a

Commodity	Unit	1983			1984		
		U.S.	Illinois	Illinois % of U.S. Consumption	U.S.	Illinois	Illinois % of U.S. Consumption
<u>Fuels</u>							
Coal	million tons	707.8	36.3	5.13	808.4	38.8	4.80
Coke	million tons	29.9	NA	NA	29.9	NA	--
Distillate fuel oils	million bbl	981.9	35.5	3.62	1,041.2	37.5	3.60
Gasoline	million bbl	2,481.7	109.7	4.42	2,577.3	112.7	4.37
Kerosene	million bbl	46.4	0.4	0.79	42.0	0.7	1.67
LPG & ethane	million bbl	550.7	27.0	4.90	576.0	31.3	5.43
Natural Gas	trillion cu ft	16.8	0.9	5.57	18.0	1.0	5.56
Residual fuel oil	million bbl	518.6	8.7	1.67	501.2	7.5	1.50
<u>Metals</u>							
Pig iron	million tons	49.1	2.8	5.61	52.2	3.0	5.75
Lead	thousand tons	1,148.5	59.8	5.21	1,207.0	66.1	5.48
Zinc (slab)	thousand tons	800.3	121.2	15.14	843.3	122.0	14.47
<u>Construction Materials</u>							
Air-cooled slag	million tons	12.4	NA	--	15.3	NA	--
Asphalt and road oil	million bbl	136.0	5.4	3.97	150.0	5.7	3.80
Cement	million tons	73.8	1.1	1.49	85.3	2.7	3.17
Sand and gravel	million tons	655.1	21.1	3.22	773.9	26.0	3.36
Stone	million tons	861.6	42.8	4.96	956.0	48.5	5.07
<u>Agricultural & Chemical Materials</u>							
Feldspar	thousand tons	710.0	46.6	6.56	690.0	38.0	5.51
Fluorspar	thousand tons	564.2	12.6	2.23	752.6	10.7	1.42
Lime ^b	thousand tons	14,902.0	664.0	4.46	15,956.0	664.0	4.16
Salt							
Evaporated	thousand tons	5,680.0	404.0	5.65	6,209.0	402.0	6.47
Rock	thousand tons	9,941.0	1,018.0	8.47	13,348.0	1,595.0	11.95

^asource: U.S. Bureau of Mines, U.S. Department of Energy.^bexcludes regenerated lime.

NA = not available at this time.

TABLE 6. Fuels and energy consumed in Illinois, 1983-84

Fuel	Units	1983	1984	Change	Trillion Btu ^a	
				1983-84 (%)	1983 ^b	1984 ^c
Coal	thousand tons	36,332	38,799	+ 6.8	784.1	837.0
Natural gas	million ft ³	938,340	1,032,779	+10.1	967.4	1,064.8
Gasoline	thousand bbl	109,746	112,705	+ 2.7	576.5	592.0
Kerosene	thousand bbl	638	663	+ 3.9	3.6	3.8
Distillate fuel oil	thousand bbl	35,503	37,485	+ 5.6	206.8	218.4
Residual fuel oil	thousand bbl	8,686	7,505	-13.6	54.6	47.2
Liquid petroleum gases	thousand bbl	27,037	31,310	+15.8	97.7	112.7
Hydropower	million kWh	134	141	+ 5.2	1.4	1.5
Nuclear power	million kWh	29,021	34,976	+24.8	305.6	377.7
TOTAL					<u>2,997.7</u>	<u>3,255.1</u>
Illinois percentage of total U.S. energy consumption					4.3	4.4
Percentage of total energy consumed in Illinois, by source						
Coal					26.16	25.71
Natural gas					32.27	32.71
Oil products					31.33	29.93
Nuclear power					10.19	11.60
Hydropower					<u>0.05</u>	<u>0.05</u>
					100.00	100.00

^afuel conversion factors: gasoline--5,253,000 Btu/bbl; kerosene--5,670 Btu/bbl; distillate fuel oil--5,825,000 Btu/bbl; residual fuel oil--6,287,000 Btu/bbl.

^b1983 fuel conversion factors: coal--21,581,000 Btu/ton; natural gas--1,031 Btu/Mcf; LPG--3,614,000 Btu/bbl; nuclear power-- 10,905 Btu/kWh; hydropower--10,445 Btu/kWh.

^c1984 fuel conversion factors: coal--21,574,000 Btu/ton; natural gas--1,031 Btu/Mcf; LPG--3,599,000 Btu/bbl; nuclear power-- 10,800 Btu/kWh; hydropower--10,369 Btu/kWh.

TABLE 7. Illinois coal production, by county, 1983-84

County	No. of mines	1983 Production ^a			Value ^b	No. of mines	1984 Production ^a			Value ^b
		Underground (tons)	Surface (tons)	Total (tons)			Underground (tons)	Surface (tons)	Total (tons)	
Christian	1 ^c	3,199,600	--	3,199,600	93,972,252	1 ^c	3,009,648	--	3,009,648	89,958,379
Clinton	1	2,379,668	--	2,379,668	69,890,849	1	3,275,349	--	3,275,349	97,900,182
Douglas	2	1,163,533	--	1,163,533	34,172,964	2	1,518,639	--	1,518,639	45,392,120
Franklin	4	5,864,413	--	5,864,413	172,237,810	4	7,788,141	--	7,788,141	232,787,534
Fulton	3	--	2,318,395	2,318,395	68,091,261	2	--	1,066,545	1,066,545	31,879,030
Gallatin	3	1,105,729	90,590	1,196,319	35,135,889	4	1,315,716	124,493	1,440,209	43,047,847
Hamilton	1	775,611	--	775,611	22,779,695	1	971,743	--	971,743	29,045,398
Jackson	1	--	2,385,855	2,385,855	70,072,561	1	--	2,276,639	2,276,639	68,048,740
Jefferson	2	3,811,278	--	3,811,278	111,937,235	2	3,767,447	--	3,767,447	112,608,991
Logan	1	532,611	--	532,611	15,642,785	1	828,897	--	828,897	24,775,731
McDonough	1	--	498,296	498,296	14,634,954	1	--	487,367	487,367	14,567,400
Macoupin	2	2,563,865	--	2,563,865	75,300,715	2	3,395,459	--	3,395,459	101,490,269
Montgomery	1	472,473	--	472,473	13,876,532	--	--	--	--	--
Peoria	1	--	533,618	533,618	15,672,361	1	--	393,492	393,492	11,761,476
Perry	5	--	13,538,276	13,538,276	397,619,166	6	4,077	14,991,560	14,995,637	448,219,590
Randolph	4	2,695,048	901,945	3,596,993	105,643,685	3	3,359,127	877,300	4,236,427	126,626,803
St. Clair	2	1,337,278	851,600	2,188,878	64,287,347	2	1,605,856	640,865	2,246,721	67,154,491
Saline	10	2,469,380	1,144,735	3,614,115	106,146,558	9	3,609,225	1,582,086	5,191,311	155,168,286
Vermilion	1	63,582	--	63,582	1,867,403	1	156,779	--	156,779	4,686,124
Wabash	1	2,698,046	--	2,698,046	79,241,611	1	2,544,916	--	2,544,916	76,067,539
Washington	1	1,110,900	--	1,110,900	32,627,133	1	1,475,100	--	1,475,100	44,090,739
White	1	25,722	--	25,722	755,455	1	231,452	--	231,452	6,918,100
Williamson	5	1,101,646	2,739,887	3,841,533	112,825,824	5 ^d	1,087,916	2,903,357	3,991,273	119,299,150
TOTAL:	54	33,370,383	25,003,197	58,373,580	1,714,432,045	52	39,945,487	25,343,704	65,289,191	1,951,493,919

^a production figures from Illinois State Department of Mines and Minerals, Annual Coal, Oil and Gas Report, 1983 and 1984.

^b value calculated at an average of \$29.37/ton for 1983 and \$29.89/ton for 1984.

^c one mine operated at junction of Christian, Montgomery, and Sangamon Counties; all production placed in the county where tipple is located.

^d one mine operated at junction of Williamson and Saline Counties; all production placed in county where tipple is located.

Table 8. Cumulative surface and total coal production in Illinois by county, 1833-1984^a

County	Cumulative total surface production (tons)	Cumulative total production (tons)	County	Cumulative total surface production (tons)	Cumulative total production (tons)
Adams	338,147	341,924	Macoupin	--	309,787,507
Bond	--	7,355,569	McDonough	1,295,513	3,903,994
Brown	41,761	74,068	McLean	--	5,544,139
Bureau	11,094,808	53,823,055	Madison	37,843	164,295,772
Calhoun	--	96,247	Marion	--	39,247,722
Cass	--	212,477	Marshall	4,779	12,516,141
Christian	--	338,315,705	Menard	--	13,462,005
Clark	4,482	4,482	Mercer	67,080	15,519,862
Clay	801	801	Monroe	--	8,284
Clinton	--	52,779,151	Montgomery	--	141,824,660
Coles	--	198,932	Morgan	13,564	190,787
Crawford	17,315	45,400	Moultrie	--	2,032,236
Douglas	--	38,046,507	Peoria	32,702,938	96,718,740
Edgar	207,242	915,698	Perry	301,356,773	399,171,360
Effingham	--	796	Pike	2,224	5,081
Franklin	--	641,329,930	Pope	34,704	36,266
Fulton	236,244,334	312,839,720	Putnam	--	10,071,893
Gallatin	7,493,954	34,882,600	Randolph	94,598,156	191,796,221
Greene	71,090	693,191	Richland	35	154
Grundy	1,635,422	40,872,430	Rock Island	--	3,846,169
Hamilton	--	3,404,625	St. Clair	115,884,467	360,731,320
Hancock	459,329	771,281	Saline	54,941,429	270,786,005
Hardin	--	40	Sangamon	--	233,449,607
Henry	9,065,783	22,910,053	Schuyler	6,044,275	7,747,691
Jackson	47,915,462	115,588,374	Scott	3,790	612,476
Jasper	--	23,739	Shelby	925	4,119,763
Jefferson	5,353,358	135,155,444	Stark	8,342,056	9,569,336
Jersey	2,290	120,350	Tazewell	--	17,633,802
Johnson	72,781	314,325	Vermilion	30,651,670	165,878,433
Kankakee	18,284,342	19,192,105	Wabash	12,082	20,112,940
Knox	62,601,174	65,896,605	Warren	132	685,466
La Salle	2,345,878	65,547,638	Washington	--	23,078,837
Livingston	139,091	10,111,437	White	--	1,933,915
Logan	--	15,991,635	Will	29,333,708	37,553,733
Macon	--	11,000,468	Williamson	90,118,973	444,666,281
			Woodford	--	7,810,160
Total cumulative surface production, 1911-1984			Estimated production, all counties, 1833-1881		
1,168,835,960			73,386,123		
Total cumulative production, 1882-1984			Total cumulative production, 1833-1984		
5,005,205,560			5,078,591,683		

^asource: Illinois State Department of Mines and Minerals, Annual Coal, Oil and Gas Reports.
Note: this table has been revised with production placed in county where tipple is located.

TABLE 9. Coal mines, employees, and production by method of mining in Illinois 1974-84^a

Year	Underground				Surface			
	No. of mines	No. of employees	Average production /mine (tons)	Average no. of employees /mine	No. of mines	No. of employees	Average production /mine (tons)	Average no. of employees /mine
1974	23	8,718	1,352,353	379	32	3,749	842,767	117
1975	21	9,549	1,518,099	455	36	4,097	768,304	114
1976	23	10,396	1,343,987	452	39	4,392	698,063	113
1977	25	11,375	1,183,559	455	45	4,739	539,810	105
1978	28	12,620	888,914	451	43	5,241	554,757	122
1979	31	13,200	1,054,233	426	40	5,299	671,422	132
1980	31	13,219	1,128,022	426	35	5,065	787,821	145
1981	31	13,351	943,081	431	27	4,797	835,672	178
1982	32	10,554	1,115,121	330	28	4,397	919,439	157
1983	31	10,514	1,076,464	339	23	4,245	1,087,096	185
1984	31	10,857	1,288,564	350	21	3,946	1,206,843	188

^asource: Illinois State Department of Mines and Minerals, Annual Coal, Oil and Gas Report, 1974-1984.

TABLE 10. Illinois coal production, 1

Rank	Company	1983					1984					
		Number of Mines		Production (tons)	Percentage of total production	No. of employees	Rank	Number of Mines		Production (tons)	Percentage of total production	No. of employees
		Underground	Surface					Underground	Surface			
1	Peabody Coal	5	3	10,433,128	17.87	2,682	1	5	3	11,554,650	17.70	2,714
2	AMAX Coal	1	3	8,900,739	15.25	1,862	2	1	2	7,918,024	12.13	1,625
3	Consolidation Coal	1	3	7,836,365	13.42	1,133	3	0	3	7,823,292	11.98	1,069
4	Old Ben Coal	4	0	5,864,413	10.05	1,631	4	4	0	7,788,141	11.93	1,751
5	Freeman United Coal Mining	3	3	5,542,828	9.50	1,762	7	3	3	5,476,487	8.39	1,615
6	Arch of Illinois ^b	0	2	5,434,786	9.31	838	6	0	1	5,623,318	8.61	975
7	Monterey Coal	2	0	4,061,838	6.96	1,244	5	2	0	5,679,400	8.70	1,143
8	Inland Steel	2	0	3,202,226	5.49	1,108	8	2	0	3,309,595	5.07	1,120
9	Zeigler Coal	3	0	1,875,750	3.21	706	9	3	0	2,670,658	4.09	654
10	Kenellis Energies	1	0	1,602,793	2.75	340	10	1	0	1,764,802	2.70	351
11	Sahara Coal	4	1	1,272,781	2.18	568	11	3	1	1,432,557	2.19	542
12	Midland Coal	0	2	1,100,448	1.89	239	12	0	2	995,916	1.53	160
13	Turris Coal	1	0	532,611	0.91	254	14	1	0	828,897	1.27	326
14	Jader Coal	1	1	249,327	0.43	42	16	1	1	302,180	0.46	41
15	Williams on Coal	0	1	180,371	0.31	42	17	0	1	275,023	0.42	49
16	Equality Mining	0	1	103,856	0.18	25	15	0	1	342,615	0.53	25
17	Illinois & W Virginia Coal	1	0	63,582	0.11	30	19	1	0	156,779	0.24	0
18	Kerr-McGee Coal	1	0	55,000	0.09	198	13	1	0	955,625	1.46	386
19	White County Coal	1	0	25,722	0.04	38	18	1	0	231,452	0.35	142
20	E & S Coal	0	2	20,856	0.03	15	23	0	1	8,535	0.01	0
21	J. J. Track Mining	0	1	14,160	0.02	2	22	0	1	32,277	0.05	5
22	A & F Coal	-	-	--	--	--	20	1	0	62,691	0.10	27
23	Ace Oiggin, Inc.	-	-	--	--	--	21	0	1	52,200	0.08	30
24	Carter Coal	-	-	--	--	--	24	1	0	4,077	0.01	52
TOTAL		31	23	58,373,580	100.00	14,759		31	21	65,289,191	100.0	14,803

^aSource: Illinois State Department of Mines and Minerals, Annual Coal, Oil and Gas Report, 1983-84.

^bSouthwestern Illinois Coal in 1983.

TABLE 11. Illinois coal shipments, by state destination and consuming sector, 1979-84 (1,000 tons)^a

Consuming sector	Wisconsin	Minnesota and Michigan	Iowa	Missouri	Indiana	Kentucky	Georgia and Florida	Other states ^b	Exports and miscellaneous	Illinois	Total
Electric utilities											
1979	3,236	1,501	1,955	11,653	6,843	464	2,950	2,382	--	18,867	49,851
1980	2,805	1,313	1,644	12,649	7,616	222	3,970	3,786	--	18,700	52,705
1981	2,198	839	1,240	11,933	5,249	--	4,680	2,873	--	14,930	43,941
1982	2,774	940	1,691	14,447	7,239	122	4,934	3,304	--	17,260	52,710
1983	2,907	616	1,659	14,428	5,999	53	4,431	2,997	--	16,812	49,903
1984	2,516	328	1,115	16,125	8,522	12	5,423	3,737	--	18,418	56,197
Coke & gas plants											
1979	--	--	--	--	2,459	--	--	--	24	444	3,013
1980	--	--	--	--	2,335	--	--	--	--	545	2,053
1981	--	--	--	28	2,004	--	--	8	--	317	2,356
1982	--	--	--	--	1,876	--	--	55	--	248	2,248
1983	--	--	--	--	1,979	--	--	200	--	276	2,455
1984	--	--	--	3	2,222	--	--	1	--	272	2,499
Retail dealers											
1979	20	10	41	28	15	--	--	--	--	63	177
1980	--	5	12	12	1	--	--	--	20	107	157
1981	--	--	1	23	4	--	--	--	20	192	240
1982	13	--	10	16	1	--	--	--	24	236	300
1983	1	11	--	30	--	--	--	--	--	319	382
1984	1	e	e	30	19	--	--	9	--	293	381
All others											
1979	575	187	859	1,449	574	--	201	49	49	2,364	6,258
1980	521	201	928	1,212	517	8	447	78	47	2,222	6,181
1981	625	184	667	1,054	495	34	84	173	64	1,559	4,943
1982	651	155	873	972	378	12	--	59	36	1,363	4,499
1983	832	193	888	733	528	--	--	46	35	1,379	4,634
1984	721	169	543	940	290	--	--	46	6	1,852	4,603
Totals^c											
1979	3,831	1,698	2,855	13,216	9,891	464	3,151	2,431	73	21,738	59,348
1980	3,326	1,520	2,583	13,947	10,469	230	4,417	3,864	67	21,575	62,002
1981	2,823	1,027	1,908	13,038	7,752	34	4,764	3,054	1,022 ^d	16,998	52,419 ^d
1982	3,438	1,095	2,574	15,435	9,494	134	4,934	3,418	395 ^d	19,176	60,122 ^d
1983	3,739	820	2,547	15,192	8,506	53	4,431	3,243	329 ^d	18,786	57,717 ^d
1984	3,238	495	1,659	17,098	11,053	12	5,423	3,793	25 ^d	20,836	63,707 ^d

^aSources: U.S. Bureau of Mines, Bituminous Coal and Lignite Distribution Quarterly, 1979.
U.S. Department of Energy, Coal Distribution, 1980-1984.

^bIncludes AL (1979-84), MS (1979-84), TN (1979-84), LA (1979-84), OH (1982 + 84^e), PA (1979-84), NY (1981-82, 84^e), KS (1981-84), TX (1981-83), and CA (1983-84), SO (1984^e). *Quantity is less than 500 short tons.

^cTotals may not add up because of independent rounding.

^dIncludes shipments to foreign countries, with no breakdown by consuming sector: 938,000 tons in 1981, 335,000 tons in 1982, and 294,000 tons in 1983, 19,000 tons in 1984.

^eQuantity is less than 500 tons.

TABLE 12. Shipment of coal for consumption in Illinois, by area of origin and consuming sector, 1979-84 (1,000 tons)^a

Consuming sector	Illinois	Western Kentucky	Indiana	Ohio, eastern Pennsylvania, ^b and northern West Virginia	Southern West Virginia, and eastern Kentucky	Western Interior states	Western states ^e	Montana ^f and Washington	Pennsylvania ^h	Total coal consumed in Illinois
Electric utilities										
1979	18,867	820	849	491	1,081	62	8,407	6,691	--	37,268
1980	18,700	463	669	--	733	26	11,997	3,920	--	36,508
1981	14,930	839	965	--	949	27	10,616	3,494	--	31,820
1982	17,260	1,000	1,209	--	802	41	9,109	2,697	--	32,118
1983	16,812	738	1,467	--	1,118	2	8,415	2,848	3	31,404
1984	18,418	1,594	1,581	--	1,683	--	7,422	1,995	i	32,693
Coke & gas plants										
1979	444	--	--	225	1,347	87	--	--	--	2,103
1980	545	--	--	350	1,095	62	--	--	--	2,052
1981	317	--	--	541	802	68	--	--	--	1,728
1982	317	--	--	470	380	82	--	--	1	1,251
1983	276	--	--	581	639	112	--	--	--	1,608
1984	272	--	--	779	1,003	35	--	--	--	2,089
Retail dealers										
1979	63	2	--	--	22	--	2	--	--	89
1980	107	1	30	--	15	--	--	--	1	154
1981	192	2	9	--	14	--	--	--	4	222
1982	236	16	51	--	7	--	--	--	1	310
1983	319	22	52	--	28	--	--	--	3	423
1984	293	31	66	--	28	--	i	--	1	420
All others										
1979	2,364	27	185	35	467	51	121	9	--	3,259
1980	2,222	9	381	3	695	19	--	--	62	3,391
1981	1,559	11	655	--	518	12	--	--	61	2,815
1982	1,363	49	655	22	533	5	17	--	20	2,664
1983	1,379	77	787	--	599	--	29	--	24	2,897
1984	1,852	443	482	150	593	16	--	--	61	3,596
Total										
1979	21,738	849	1,034	751	2,917	200	8,530	6,700	--	42,719
1980	21,575	472	1,080	353	2,539	107	11,997	3,920	63	42,106
1981	16,998	852	1,628	541	2,283	107	10,616	3,494	66	36,585
1982	19,176	1,065	1,914	493	1,721	128	9,125	2,697	22	36,342
1983	18,786	838	2,307	581	2,384	114	8,444	2,848	30	36,332
1984	20,836	2,067	2,129	928	3,307	51	7,422	1,995	63	38,799

^aSources: U.S. Department of Energy, Bituminous Coal and Lignite Distribution, Calendar Years 1978-79; U.S. Department of Energy, Coal Distribution, 1980-84.

^bIncludes Districts 1, 2, 3, 4, and 6 (MD, OH, eastern PA, northern WV). 1984 Districts 2, 3, and 6.

^cIncludes Districts 7, and 8 (AL, GA, eastern KY, NC, TN, VA, southern WV).

^dIncludes Districts 14 and 15 (AR, KS, MO, OK, TX).

^eIncludes Districts 16, 17, and 19-21 (CO, ID, NM, SO, UT, WY).

^fIncludes Districts 22 and 23 (AK, MT, OR, WA).

^gEstimated: Includes minor amounts of coal shipped to other consuming sectors.

^hdata started in 1980, Anthracite.

ⁱ quantity is less than 500 tons.

TABLE 13. Cumulative crude oil production 1888-84, production and value 1983-84, by county^a

County	1888-1984 cumulative production (1000 bbl)	1983			1984		
		Production (1000 bbl)	% of total Illinois production	Value ^d (\$1000)	Production (1000 bbl)	% of total Illinois production	Value ^d (\$1000)
Adams	267	44	0.2	1,290	12	0.0	353
Bond	7,782	74	0.3	2,145	80	0.3	2,308
Brown	1,656	747	2.6	21,722	266	0.9	7,636
Champaign	7	--	--	--	--	--	--
Christian	27,879	320	1.1	9,303	396	1.4	11,378
Clark-Cumberland	93,321	379	1.3	11,022	396	1.4	11,388
Clay	141,683	1,396	4.8	40,582	1,380	4.8	39,692
Clinton	86,898	367	1.3	10,687	340	1.2	9,788
Coles	24,088	139	0.5	4,045	134	0.5	3,855
Crawford	241,007	1,724	5.9	50,141	1,887	6.5	54,274
Oe Witt	3,538	73	0.3	2,128	64	0.2	1,849
Oouglas	3,652	4	0.0	104	3	0.0	89
Edgar	4,297	66	0.2	1,927	57	0.2	1,648
Edwards	53,089	1,392	4.8	40,487	1,401	4.9	40,298
Effingham	18,423	297	1.0	8,626	281	1.0	8,086
Fayette	403,978	1,980	6.8	57,564	1,959	6.8	56,340
Franklin	76,308	1,190	4.1	34,606	1,116	3.9	32,109
Gallatin	53,902	513	1.8	14,905	549	1.9	15,794
Hamilton	135,894	506	1.7	14,719	494	1.7	14,209
Jackson	67	23	0.1	661	14	0.0	399
Jasper	56,244	824	2.8	23,964	727	2.5	20,898
Jefferson	88,652	1,032	3.5	30,000	969	3.4	27,875
Lawrence	409,063	2,634	9.0	76,583	2,785	9.6	80,100
Macon	2,184	210	0.7	6,093	151	0.5	4,331
Macoupin	326	10	0.0	280	9	0.0	258
Madison	18,175	143	0.5	4,154	128	0.4	3,688
Marion	424,859	2,554	8.7	74,281	2,239	7.8	64,402
McDonough-Hancock ^c	5,675	24	0.1	686	18	0.1	508
Monroe	65	1	0.0	19	f	--	4
Montgomery	137	3	0.0	102	5	0.0	147
Moultrie	117	2	0.0	54	4	0.0	109
Perry	899	12	0.0	346	12	0.0	342
Piatt	6	3	0.0	98	2	0.0	54
Randolph	4,786	37	0.1	1,090	40	0.1	1,151
Richland	107,806	920	3.1	26,751	874	3.0	25,136
St. Clair	3,531	24	0.1	707	26	0.1	757
Saline	23,165	417	1.4	12,132	388	1.4	11,167
Sangamon	4,732	320	1.1	9,300	202	0.7	5,818
Schuyler	160	133	0.5	3,866	26	0.1	745
Shelby	1,946	35	0.1	1,007	44	0.2	1,257
Wabash	115,293	1,095	3.7	31,842	1,029	3.6	29,596
Washington	33,835	413	1.4	12,007	407	1.4	11,695
Wayne	265,810	3,125	10.7	90,865	3,073	10.6	88,390
White	304,751	3,316	11.4	96,442	3,322	11.5	95,555
Williamson	2,613	40	0.1	1,159	30	0.1	874
Other ^b	8,282	641	2.2	18,646	1,532	5.3	44,051
Total ^e	3,260,845	29,200	100.0	849,137	28,873	100.0	830,400

^asource: Illinois State Geological Survey Oil and Gas Section.^bcould not be assigned to individual field or county.^cno oil production reported for Hancock County in 1971-1978. There was 4,058 bbls in 1983 and 3,004 bbls in 1984.^dvalue calculated at an estimated average price of \$29.08 per barrel for 1983 and \$28.76 per barrel for 1984.^emay not add up because of independent rounding.^fMonroe County produced a very small amount 149 barrels in 1984

TABLE 14. Illinois crude oil production, by major field^a, 1983-84^b

Field	County	1983		1984		1983-84 Change (%)
		Production (1000 bbl)	% of Illinois total	Production (1000 bbl)	% of Illinois total	
Southeastern Illinois	Wabash Lawrence Crawford Clark Cumberland Jasper	4,851.4	16.6	5,200.0	18.0	+ 7.2
Clay City Consolidated	Clay Wayne Richland Jasper	3,222.4	11.0	3,217.9	11.1	- 0.1
Salem	Marion Jefferson	2,283.7	7.8	1,981.6	6.9	- 13.2
Louden	Fayette Effingham	1,762.5	6.0	1,787.3	6.2	+ 1.4
New Harmony Consolidated	White Wabash Edwards	1,617.8	5.5	1,461.6	5.1	- 9.7
Buckhorn East	Brown	693.2	2.4	237.8	0.8	- 65.7
Phillipstown Consolidated	White Edwards	651.5	2.2	857.4	3.0	+ 31.6
Sailor Springs Consolidated	Clay Jasper Effingham	598.5	2.1	669.9	2.3	+ 11.9
Albion Consolidated	Edwards White	559.4	1.9	577.4	2.0	+ 3.2
Herald Consolidated	White Gallatin	391.7	1.4	449.8	1.6	+ 14.8
Roland Consolidated	White Gallatin	361.5	1.2	337.1	1.2	- 6.7
Dale Consolidated	Franklin Hamilton Saline	324.4	1.1	349.7	1.2	+ 7.8
St. James	Fayette	300.4	1.0	253.4	0.9	- 15.6
Parkersburg Consolidated	Richland Edwards	282.7	1.0	--	--	--
Renton	Franklin	269.8	0.9	264.0	0.9	- 21.5
Johnsonville Consolidated	Wayne	263.0	0.9	--	--	--
Ewing East	Franklin	247.0	0.9	206.0	0.7	- 16.6
Goldengate Consolidated	Wayne White	228.8	0.8	278.4	1.0	+ 21.7
Storms Consolidated	White	--	--	200.4	0.7	--
		18,909.6	64.7	18,329.7	63.6	- 3.1

^amajor fields are fields producing more than 200,000 bbl/year.^bsource: Illinois State Geological Survey Oil and Gas Section.

TABLE 15. Consumption of major petroleum products in Illinois, 1981-84

		1981	1982	1983	1984
Gasoline ^a (excluding naphtha)	thousand bbl	109,476	107,675	109,746	112,705
Kerosene ^b	thousand bbl	666	439	638	663
Distillate fuel oil ^a	thousand bbl	34,427	32,521	35,503	37,485
Residual fuel oil ^a	thousand bbl	21,399	15,507	8,686	7,505
Liquefied gases ^b	thousand gal				
Propane		540,432	495,566	NA	NA
Butane		W	W	NA	NA
Butane-propane mix		W	W	NA	NA
Total		1,327,870	954,601	NA	NA
Asphalt & road oil ^c	thousand bbl	4,539	5,141	5,365	5,727

^aBasic Petroleum Data Book, American Petroleum Institute.

^bPetroleum Supply Annual, v. 1., U.S. Department of Energy, Office of Oil and Gas.

^cState Energy Data Report, DOE/EIA-0214.

NA = data not available at this time.

TABLE 16. Production of natural gas in Illinois, 1977-84^a

Year	Withdrawals (million cu ft)			Disposition (million cu ft)
	Gas wells	Oil wells	Total	Marketed
1977	1,003.0	b	1,003	1,003
1978	958.5	200.5	1,159	1,159
1979	1,317.6	267.4	1,585	1,585
1980	1,333.6	240.4	1,574	1,574
1981	1,103.6	191.4	1,295	1,295
1982	993.5	168.5	1,162	1,162
1983	858.0	172.0	1,030	1,030
1984	1,399.6	130.4	1,530	1,530

^asource: Illinois State Geological Survey, Oil and Gas Section.

^bnot reported separately; included under gross withdrawals from gas wells.

TABLE 17. Production of natural gas in Illinois, by field and county, 1982-84^a

Gas field	County	Production (million cu ft)			Change (%)	
		1982	1983	1984	1982-83	1983-84
Eldorado East	Gallatin	8.3	11.7	8.5	+ 41.0	- 27.6
Harco South	Saline	0.4	2.3	5.3	+503.2	+136.8
Mattoon	Coles	389.2	285.4	432.2	- 26.7	+ 51.5
Raleigh	Saline	NP ^c	20.1	196.9	--	+880.0
Stubblefield South	Bond	9.2	3.3	N.P	- 64.1	--
Mine Gas	Saline	50.4	63.6	57.5	+ 26.3	- 9.6
Keenville	Wayne	164.3	134.0	94.0	- 18.4	- 29.9
New Athens	St. Clair	54.3	34.3	29.4	- 36.8	- 14.3
Louden	Fayette					
	Effingham	4.3	38.1	36.4	+795.0	- 4.5
St. Jacob East	Madison	4.0	4.7	3.7	+ 17.5	- 21.3
Albion Consolidated	Edwards	3.3	6.1	N.P	+ 85.3	--
Waggoner	Montgomery	15.0	20.3	27.0	+ 35.4	+ 32.9
Eden	Randolph	2.0	1.3	1.2	- 35.0	- 7.7
Grandview-Inclose	Edgar	58.9	57.9	47.8	- 1.8	- 17.4
St. Libory	St. Clair	41.8	50.0	34.6	+ 19.6	- 30.8
Fishhook	Pike	297.8	243.5	301.2	- 18.2	+ 23.7
Johnson City East	Williamson	58.5	1.6	0.8	- 97.3	- 48.7
Pittsburgh	Williamson	--	52.0	85.0	--	+ 63.5
Griggsville	Pike	--	--	168.6	--	--
TOTAL^b		1,161.6	1,030.2	1,530.2	- 11.3	+ 48.5

^asource: Illinois State Geological Survey.^btotals may not add up because of rounding.^cno production.TABLE 18. Consumption of natural gas in Illinois by consumer class, 1983-84^a

Consumer class	1983		1984		1983-84 change (%)
	Quantity (million cu ft)	% of total consumption	Quantity (million cu ft)	% of total consumption	
Residential	430,606	45.9	479,572	46.4	+ 11.4
Commercial	204,834	21.8	232,170	22.5	+ 13.3
Industrial	276,533	29.5	299,474	29.0	+ 8.3
Electric utilities	11,948	1.3	5,963	0.6	- 50.1
Other consumers	--	--	--	--	--
Total delivered^b to consumers	923,921	98.5	1,017,180	98.5	+ 10.1
Other uses^c	14,419	1.5	15,599	1.5	+ 8.2
Total consumption	938,340	100.0	1,032,779	100.0	+ 10.1

^asource: U.S. Department of Energy.^bincludes municipalities and public authorities that use natural gas for institutional heating, street lighting, and other purposes.^cincludes lease and plant fuel, pipeline fuel, and extraction losses.

TABLE 19. Sand and gravel produced and mode of transportation, by county, 1984^a

County	No. of companies	No. of operations	Total quantity produced (1000 tons)	Value (\$1000)	Mode of shipment (1000 tons)			Not transported
					Truck	Rail	Barge	
Adams	2	2	W	W	W	--	--	W
Alexander	2	2	W	W	--	--	--	W
Bond	3	3	197	485	197	--	W	W
Boone	2	2	W	W	W	--	--	--
Bureau	3	3	300	1,087	W	--	--	W
Champaign	5	6	639	1,990	631	--	--	8
Clinton	1	1	W	W	W	--	--	--
Coles	2	3	W	W	W	--	--	W
Cook	3	3	509	1,523	449	--	--	60
Crawford	1	1	W	W	W	--	--	--
Cumberland	3	3	203	4 ⁴	203	--	--	--
De Kalb	3	3	117	348	116	--	--	1
De Witt	1	1	W	W	W	--	--	--
Du Page	2	3	W	W	W	--	--	--
Effingham	1	1	b	b	b	--	--	--
Fayette	1	1	W	W	W	--	--	--
Ford	2	4	W	W	W	--	--	W
Fulton	1	1	W	W	W	--	--	--
Gallatin	1	1	W	W	--	--	W	--
Grundy	1	1	W	W	W	--	--	--
Henderson	1	1	W	W	W	--	--	--
Henry	2	3	W	W	W	--	--	--
Jackson	1	1	W	W	W	--	--	--
Jo Daviess	1	1	W	W	W	--	--	--
Kane	8	12	4,261	13,254	4,261	--	--	--
Kankakee	2	2	W	W	W	--	--	--
Kendall	3	3	78	158	78	--	--	--
Knox	1	1	W	W	W	--	--	--
Lake	3	3	2,259	4,557	2,259	--	--	--
La Salle	5	7	429	1,102	429	--	--	--
Lawrence	2	3	341	877	341	--	--	--
Livingston	2	2	W	W	W	--	--	--
Logan	2	2	W	W	W	--	--	--
McHenry	13	15	4,079	11,253	4,079	--	--	--
McLean	3	5	682	3,021	682	--	--	--
Macon	2	2	W	W	W	--	--	--
Madison	1	2	W	W	W	--	--	--
Marshall	1	3	W	W	W	--	--	--
Mason	1	1	10	24	10	--	--	--
Massac	1	2	15	21	15	--	--	--
Morgan	1	2	b	b	b	--	--	--
Moultrie	1	1	12	W	12	--	--	--
Ogle	1	1	W	W	W	--	--	--
Peoria	6	7	632	1,619	632	--	--	--
Piatt	2	3	W	W	W	--	--	--
Pike	1	1	W	W	W	--	--	--
Pulaski	1	1	W	W	--	--	W	--
Putnam	3	3	41	118	41	--	--	--
Randolph	1	1	W	W	W	--	--	--
Rock Island	1	3	W	W	W	--	--	--
St. Clair	2	2	W	W	W	--	--	--
Sangamon	4	4	541	1,659	W	--	--	--
Stephenson	2	2	W	141	W	--	--	--
Tazewell	4	5	239	764	W	--	--	W
Vermilion	3	3	110	195	110	--	--	--
Wabash	1	1	W	W	W	--	--	--
White	2	2	W	W	W	--	--	--
Whiteside	4	4	147	302	W	--	--	--
Will	6	7	641	1,586	W	--	--	--
Winnebago	4	5	254	508	254	--	--	--
Woodford	6	6	899	3,083	W	--	--	W
Various	1	10	W	W	W	--	--	W
Concealments	--	--	8,347	22,359	9,829		1,272 ^a	
Total ^d	153	190	25,969	72,477	24,628		1,341 ^a	

^aSource: U.S. Bureau of Mines.^bbarge and not transported added together to conceal individual company data, no shipments by rail^cAmount produced is under 500 tons; total value is under \$500.^dTotals may not add up to amounts shown because of independent rounding.

W = Withheld included in concealments.

TABLE 20. Illinois sand and gravel sold or used by producers, by class of operation and use, 1982 and 1984

	1982		1984		1982-84 change in quantity (%)	1982-84 change in value (%)
	Quantity (1000 tons)	Value (\$1000)	Quantity (1000 tons)	Value (\$1000)		
Construction aggregates						
Sand and gravel						
Construction operations						
Building	9,646	27,163	4,107	11,480	- 57.4	- 57.7
Paving	8,967	25,212	7,453	23,239	- 16.9	- 7.8
Fill	2,510	5,062	2,800	5,805	+ 11.6	+ 14.7
Other uses ^a	435	1,712	11,609	31,952	+2568.7	+1766.4
Total ^b	21,558	59,148	25,969	72,477	+ 20.5	+ 22.5
Industrial sand						
Sand blasting	-- ^d	-- ^d	276 ^d	6,243 ^d	--	--
Molding	1,360	12,674	1,306	17,480	- 4.0	+ 37.9
Glass	1,790	18,456	1,670	15,409	- 6.7	- 16.5
Other uses ^c	839	14,535	848	13,064	+ 1.1	- 10.1
Total ^b	3,989	45,665	4,100	52,197	+ 2.8	+ 14.3
Total sand and gravel ^b	25,547	104,813	30,069	124,673	+ 17.7	+ 18.9

^aincludes railroad ballast.^bnumbers are rounded and totals may not add up.^cincludes railroad traction, filtration, grinding and polishing, pottery, abrasives, chemicals, enamel, propping sand for hydrofracturing oil wells, and other uses.^dincluded with other uses to conceal for 1982 and added to other uses for percentage purposes only for 1984.TABLE 21. Production and value of finished portland cement manufactured in Illinois, 1983-84^a

	1983	1984	Change (%)
			1983-84
No. of active plants	4.	4.	--
Production (tons)	1,888,713	1,876,231	- 0.7
Shipments from mills			
Quantity (tons)	1,857,430	1,996,658	+ 7.5
Value	74,975,215	82,621,878	+ 10.2
Average value/ton	40.37	41.38	+ 2.5
Stocks at mills, Dec. 31 (tons)	229,000	119,000	-48.0

^asource: U.S. Bureau of Mines.TABLE 22. Coke production, coal carbonized, coal used and value, 1978-84^a

Year	Coke production (1000 tons)	Coal carbonized (1000 tons)	Coal receipts at coke plants (1000 tons)	Average price of coal receipts at coke plants (\$/short ton)
1978	1,431	2,255	1,638	49.71
1979	1,364	2,210	2,154	48.96
1980	1,155	1,811	1,684	51.75
1981	1,170	1,731	1,755	56.10
1982	1,175	1,764	1,723	59.79
1983	1,359	2,028	2,068	56.63
1984	1,643	2,499	2,550	56.12

^asource: U.S. Department of Energy.

TABLE 23. Mineral production data for 1984 and preliminary 1985

Commodity	Unit	1984		1985		1984-85 change (%)	
		Quantity	Value (\$1000)	Quantity	Value (\$1000)	Quantity	Value
MINERAL MATERIALS MINED							
Fuels							
Coal	thousand tons	65,289	\$1,951,494	60,600	1,757,400 ^a	- 7.2	- 9.9
Crude oil	thousand bbl	28,873	830,400	30,000 ^a	840,000 ^a	+ 3.9	+ 1.2
Natural gas	million cu ft	1,530	4,254	1,324 ^a	3,668 ^a	- 13.5	- 13.8
Industrial and construction materials							
Stone	thousand tons	48,500	191,600	44,002	184,117	- 9.3	- 3.9
Sand and gravel	thousand tons	30,069	124,674	29,300	127,300	- 2.6	+ 2.1
Clays ^b	thousand tons	253	940	228	846	- 9.9	- 10.0
Fluorspar	thousand tons	W	W	W	W	+ 3.0	+ 3.0
Tripoli	thousand tons	W	W	W	W	+ 3.8	- 3.8
Metals							
Lead	tons	W	W	W	W	- 42.7	- 57.0
Zinc	tons	W	W	W	W	- 27.3	- 39.4
Silver	troy oz	W	W	W	W	--	--
Other							
Peat	thousand tons	W	W	W	W	+ 8.2	+ 16.8
Gem stones		NA	15	--	15	--	--
Barite, primary	thousand tons	W	W	W	W	- 50.0	- 59.0
Values that cannot be disclosed (W)			34,652		34,476		- 0.5
Total value of mineral materials mined			\$3,138,029		\$2,947,822		- 6.1

^a estimated by Illinois State Geological Survey.^b excludes fuller's earth; included with value of items that cannot be disclosed.

W = withheld to avoid disclosing individual company confidential data.

TABLE 24. Coal shipments from Illinois to consuming sectors in the United States, 1983-85^a (1000 tons)

Consuming Sector	1983 Jan--Sept	1984 Jan--Sept	1985 Jan--Sept	1983-1984 change (%)	1984-1985 (change %)
Electric utilities	37,909	43,771	39,936	+15.5	- 8.8
Coke and gas plant	1,828	2,036	1,488	+11.4	-26.9
Retail dealers	251	336	232	+33.9	-31.0
All others	3,352	3,844	2,717	+14.7	-29.3
Transportation	--	--	--	--	--
Used at mine	2	--	9	--	--
Mine stock (adjusted)	--	--	--	--	--
Foreign	235	18	63	-92.3	-250.0
Total	43,577	50,006 ^d	44,445	+14.8	-11.1

^asource: U.S. Department of Energy, Coal Distribution, January-September, 1983, 1984, and 1985.TABLE 25. Coal shipments from Illinois to consuming states, 1983-85^a (1000 unit tons).

Consuming Sector	1983 Jan--Sept	1984 Jan--Sept	1985 Jan--Sept	1983-1984 change (%)	1984-1985 change (%)
Illinois	14,093	16,621	14,183	+17.9	-14.7
Missouri	11,595	13,563	10,765	+17.0	-20.6
Indiana	6,314	8,656	7,004	+37.1	-19.1
Wisconsin	2,816	2,656	1,484	- 5.7	-44.1
Georgia	2,365	2,383	2,315	+ 0.8	- 2.9
Iowa	1,971	1,571	1,052	-20.3	+24.3
Alabama	1,765	1,678	2,075	- 4.9	+23.7
Florida	1,076	1,449	2,786	+34.7	+92.3
Minnesota	376	163	235	-56.6	+44.2
Other states ^b	971	1,248	1,539	+28.5	+23.3
Exports	235	18	63	-92.3	+250.0
Total	43,577	50,006	44,445	+14.8	-11.1

^asource: U.S. Department of Energy, Coal Distribution, January-September, 1983, 1984, and 1985.

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